

deleða sc̄ per xp̄m venturū. q̄z hoc nō poterat f
cere iohānes. sed denīci abat hoc p̄ xp̄m fiēdūr
vt habet eod̄ cal. Videſ aūt multos phariseorū
Hic ostēdit idoneitas iohāniſ ad ferēdum testi
niū de xp̄o ex veritate doctrine q̄ d̄fisit in hoc c
aliquis nō timet vicia magnorū d̄fidēter arguer
n̄t̄ faiabat iohāne aūt̄ notat̄ uim dicit̄. Videſ

delēda sc̄ per xp̄m venturū. q̄z hoc nō poterat f
cere iohānes. sed denīci abat hoc p̄ xp̄m fiēdūr
vt habet eod̄ cal. Vides aut̄ multis phariseoruz
Hic ostēdit idoneitas iohāniſ ad ferēdum testi
niū de xp̄o ex veritate doctrine q̄ d̄sistit in hoc q
aliquis nō timet vicia magnorū d̄fidēter arguer
n̄t̄ faiabat iohāne aꝝnotat̄ uim dicit̄ Vides

iour l'armee des Turcs mit le siege devant la Ville de
 Vienne.& le xvii.iour Septembre le Roy lan fut pris,
 & l'armee de France mise en route par les Anglois,&
 le iour precedent fut la paix arrestee , & conclue à Sois-
 sons entre le Roy de France,& l'empereur , estant lvn
 & l'autre au hazard de son estat : & ce qui fait encores
 plus à remarquer,est que la grande conioction aduint
 le mesme iour,mois, & an du traicté . Nous trouuons
 aussi que l'an M.CI XXXVI.au mois de Septembre les
 hautes & basses planettes furent conointes: alors que
 les Astrologues d'Orient, par lettres escriptes de tous
 costez, comme dit la chronique Saint Denis , mena-
 serent tous les peuples des changemens de Republi-
 ques qui depuis aduindrent . Vray est quel l'Historien
 a failly en ce qu'il dit qu'il y eut eclipse de Soleil le xi.
 Auril , & le v . du mois eclypse de Lune, chose impos-
 sible par nature . Nous voyons aussi que le xxvi.
 iour de Septembre , Charle ix . Roy de France fut af-
 sailli pres de Meaux , & à grande peine se sauua . au
 mesme iour,mois,& an, Henry Roy de Suede fut des-
 pouillé de son estat,& cōstitué prisonnier par ses sujets
 le xxviii. où il est encores . Payazet desfit l'armee des
 Chrestiens de trois cens mil hommes à la journee de
 Nicopolis.& le mesme iour , Saladin print la ville de
 Hierusalem , au temps que l'empereur Vespasian l'a-
 uoit prise . Aussi trouuons nous plusieurs grāds Princes
 & monarques morts en ce mois, à scauoir Auguste,Ti-
 bère,Vespasian,Tite,Domitian,Aurelian,Theodose le
 grand,Gratian,Basile,Constantin v. Leō III.Rol,Fri-
 deric III.Charles v.empereurs,Charles v.surnommé
 le sage,Pepin,Louys le ieune,Philippe II.& inhois au
 tres des plus illustres monarques que ie laisse . encores
 est-il notable que Sultan Suleymā,Charle v.empereur
 les deux plus grands Princes qui ayēt esté de plusieurs
 siecles , sont naiz en mesme année , & morts aussi le
 mois de Septembre . Antonin Debonaire , & François I.
 tous deux grāds monarques , & des plus illustres
 nāsquirent ce mesme mois & tous deux moururent en
 Mars qui a le signe directement opposité à la Liure: & au

Traicté de
 paix mem-
 rable.Ler
 Charles
 & Henr
 Roy des
 de en mes
 iour,mois
 an,furest
 extreme a
 ger.

Cel. lib. 15.
 Sueton. in
 gust.

Nous lissons aussi que les plus grands tremblemens de terre qui out iamais esté sont aduenus au mois de Septembre: comme celuy qui aduint l'an M.D.IX. à Constantinople, où meururent ⁶ xiiii. mil hommes: ce qui estoit aussi aduenu en la mesme ville, au mesme mois l'an CCCCLXXIX.⁷ & ce grand tremblement qui esbuan la toute la terre habitable l'an DXLV. aduint le vi. iour de Septembre, & le seconq iour de Septembre lors de la iournee Actiaque, le tremblement de terre en la Palestine tua dix mil personnes ⁸. Et quelques fois ces notables changemens aduiennent sus la fin du mois d'Aoust, quād la Luue de Septembre preuient l'entree du Soleil au signe de la Liure. qui sont tous argumens qui monstrent que tout ainsi que le monde fut créé au mois de Septembre le Soleil estant en la Liure 1. degré, comme nous auons dit, aussi les changemens notables aduiennent au mois de Septembre, & non pas au mois de Mars, sus lequel Leouice a fondé la fin du monde. La loy de Dieu appelle faux prophetes, & defend de craindre ceux qui predisent, & assurent les choses qui puis apres n'aduiennent point: Or Leouice auoit predict pour chose assurée que Maximilian Empereur seroit Monarque de l'Europe, pour chastier la tyrannie des autres Princes (desquels il pouuoit escrire plus modestement) ce qui n'est point aduenu, & ne peut plus auenir. Mais il n'auoit pas predict ce qui aduint vn an apres sa prophetie, que Sultan Suleyman de uoit assieger & forcer la plus forte place de l'Empire, voire de l'Europe & à la veue de l'Empereur, & de l'armee de l'empire, sans aucun empeschement: montrant bien qu'il ne se faloit pas assurer sur li prophetic de Luther, qui a laissé par escrit que la puissance des Turcs iroit dessors en auant en diminuat, qui croist plus qu'el le ne fit onques.

Mais c'est merueilles que Leouice, n'auoit, & si n'a rien veu au changement estrange de trois Royaumes de ses propres voisins, comment pourroit-il auoir connu la fin du monde, qui ne fut onques reuelee aux Anges? Car pour toute raison il ne dit autre chose, sinon qu'il fuit oublie.

relle des loix bien accordees, & des meurs bien composez, aux loix & coutumes iniques & pernicieuses. Je ne veus pas toutesfois nyer que l'harmonie n'ait grand effect à changer vne Republique: & en cela Platon & Aristote s'accordent tresbien, quoy que Cicerō pense qu'il soit impossible , que pour les branles d'une Republique changez, la Republique prenne changement: car nous en auons vn exemple memorabile de la Republique des Cynethenses en Arcadie , laquelle ayant laisse le plaisir de la musique, qui bien tost apres tomba en seditions, & guerres ciuiles , auquelles il ne fut oublie aucune sorte de cruauté.² & comme vn chacun s'estonnoit, pourquoi ce peuple là deuoit si reueche, & si barbare, veu que tous les autres peuples d'Arcadie, estoient doux, traictables, & courtois à merueille: Polybe aperceut le premier, que c'estoit pour auoir laisse la musique, laquelle de toute ancienneté auoit touſiours esté honoree. & prisee en Arcadie plus qu'en lieu du monde: de sorte que par les ordonnances & coutumes du pays, chacun deuoit s'exercer en icelle iusques à xxx. ans sur grandes peines: qui fut le moyen dit Polybe, que les premiers legislateurs de ce peuple la trouuerent pour l'adoucir & apriuoiser, eſtāt de ſon naturel barbare, comme tous habitans de montagnes, & pays froids. Nous pouuons, peut eſtre, faire ſembla ble iugement des Ganlois, que Julian l'Empereur appelloit barbares³ de ſon temps: & qu'on a veu depuis France adoucies plus courtois & traictables qui foient en l'Europe, ci par la Musique.

*Le peuple de
France adoucies
plus courtois & traictables qui foient en l'Europe,
ci par la Musique.*

*3. in epistola ad
Antiochum.*

*4. In libris de la
gibus & Repu-
blica.*

*La muſi-
que a grande
ſiria che-
ou retenu-
ſtat.*

2. Polyb. lib.

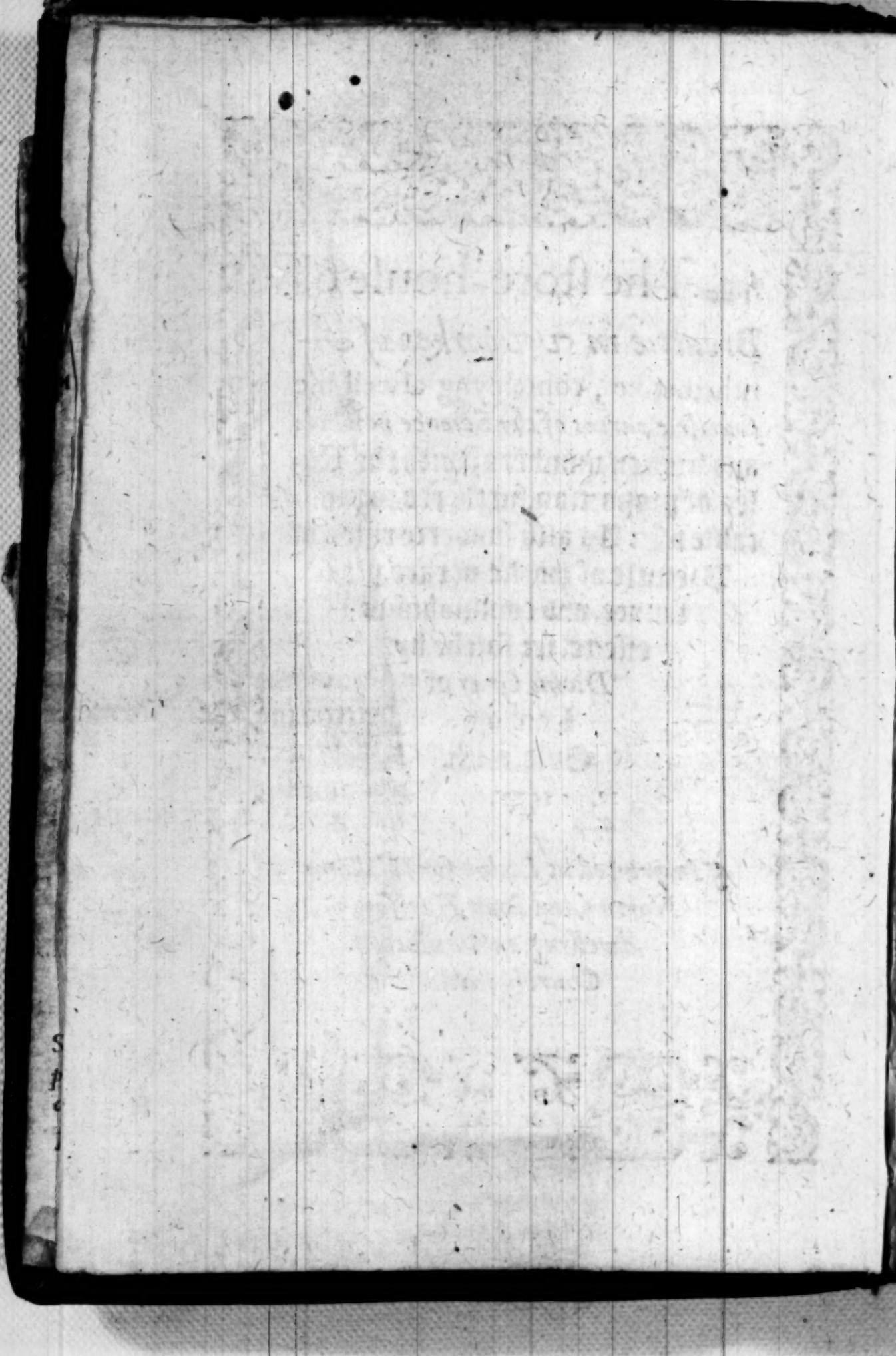
se, de chanter les Pseaumes d'autre ton. La defense seroit meilleure en L'Asie mineur, qui n'auoit autres brāles que du cinq & sept ielme ton, mesmement au pays de Lydie, & Ionie: mais les peuples du pays de Septentrion froids ou montueux, qui sont ordinairement plus sauvages, ou moins courtois que les peuples de l'indy & habitans es plaines, ne se peuvent mieux appriuoiser & adoucir, qu'en ysant de l'harmonie Lydiene & Ionique: qui estoit aussi defendue en la primitive Eglise, & n'estoit permis chanter louanges & Psalmes, que du premier ton: qui est encores à present le plus frequent es eglises. Et tout ainsi que les hommes desarmen les bestes sauvages, pour en venir à bout: aussi l'harmonie Lydiene & Ionique, desarme les plus farouches & barbares nations du naturel sauvage & cruel, & les rend doux & ployables: comme il est aduenu aux François, qui peut estre n'eussent pas esté si domptables & si obeissans aux loix & ordonnances de ceste monarchie, si ce naturel, que l'empereur Julian dit auoir esté si haut. & si peu souffrant la servitude, n'eust esté amolli par la musique.

Mais de toutes les reigles, soit de l'Astrologie, soit de la musique, qu'on a trouuees pour juger à l'aduenir des changemens, & issues des Republiques, il n'y en a point de necessaire. Et toutesfois, c'est bien chose merveilleuse de la sagesse de Dieu, qui a tellement disposé toutes choses par nombres, que les Republiques mesmes, apres certaines années, prennent ordinairement fin: comme il est besoin de montrer, ce que personne n'a fait par cy deuant, pour auoir quelque iugement des chāgemens, & cheutes des Republiques: pour faite entendre, que les choses humaines ne vont pas fortuitement, & neantmoins Dieu par fois laissant le cours ordinaire des causes naturelles, passe par dessus afin qu'on ne pense, que toutes choses viennent par fatale destinee. Je mettray seulement six, ou sept nombres entre dix mil, qui le plus souuent donnent changement aux Republiques: c'est à sc̄auoir les nombres quatrez,

The store-house of
Breuitie in vvoorkes of A-
rithemetike , containyng aswell the
soundrie partes of the Science in whole
and broken numbers, with the Ru-
les of proportion, furthered to profit-
able use : As also sunderie rules of
Brenitie of wōke, of rare, plea-
saunte, and commodious
effeete, set fo; the by
Dionis Gray of
London
Goldsmith.

1577.

Imprinted at Lödon for William
Norton, and Ihon Harison,
dwelling in Paules
Church-yard.



To the right honourable Sir
Jhon Langley knight, Lorde Maior
of London, & the other worshipfull Maisters,
Wardeins and whole assisaunts of the
Mistery of Goldsmithrie, Dianis
Gray, a member of the same,
wishes vertuous
prosperitie.



S I had conference with
my self, right honourable
and worshipfull, of the
great utilitie, delectation
and estimation, procured
to every Commonweale,
by the sciences Mathe-
maticall, and how muche more unto those cou-
tries, wherein knowledge and understandyng
of the saied sciences doeth florish & abounde
ouer and aboue other the same wātyng. And
also notyng the diligence of sondrie authořs
of moſte Natiōns in their vulgare langua-
ges in w̄ritynge of the premises, to p̄ofice
their countries. No good will not inferiour
A.ij. to

The Epistle

to any other, to profite the Commonweale, whereof I am a member, so farre forthe as with moſte diligēce and vnderstanding, by the goodnes of God I might haue habilitie: I was moued thereby to employe ſome eu- deuour, wherin my good will in part might appear, treatyng of the premisses, not with- out greate hope to preferre many thynges, in every of the ſaid Sciences, as maie bee founde of rare and coimmodious effecte, for moſte vocations and degrees of people. And for that Arithmetique is the grounde,direc- tion, and producer of the moſte parte of ſuche Haruest, as in the fertile fieldes of the ſaid ſciences is to bee reaped . I haue therefore framed this rude diſcourſe of the Arte of numberyng, the firſt fruictes of my good wil, dedicated to your wifedomes, containingyng as well the ſondrie partes of the ſaid ſcience, in whole and broken Numbers, the ſame ap- pliying to ſeuall uſes, for furtheraunce of common vtilitie, as alſo many and ſonderie Rules of þreuetie of woþke, no leſſe profita- ble, then rare to bee ſeen in any authour, En- glishe or other. Beſechyng your wifedomes, to haue more regarde to my good meanyng herein, then either to my boldneſſe, or rude
or der

Dedicatore.

order in penning of the same: & as the effecte
of my diligence, may procure contentation, or
benefite to any vocation in the commonweale,
so I maie haue cause, not onely to reioyce of
my trauaile, but also encouraged to further
other wokes of greater consequence, there-
in assisted by the goodness of þ almighty,
who increase your honour and
worshippes with grace,
wisedome, and god-
lie felicitie.

A.iiij.



To the Reader.



Elightyng who it bee,
in Sciences Mathematical,
Euery princely practise,
in order to define:
Note that Arithmetique,
of all the rest is principall,
Joyned with the other,
in sister's louyng line,
So pleasyng diuine sapience,
the effecte to assigne.
Gained is thereby moste,
in the reste desired,
Refusall els is made,
of that might bee required.

All Pearth, Platthes, and Edifices,
by measure to aduaunce,
In the circuite of the worlde,
how so euer it bee framed:
Of sides, endes, Angles, and pointes,
number sheweth distaunce,
Formed in Globe, Square, and Cube,
or other title named,
Geometrie and Astrologie,
confesse and not ashamed.
Arithmetique your derection,
in mosle ye doe pretende,

Without

To the Reader.

Without whose secrete ingenie,
your praise were halfe at ende.

The describyng of the Sphere,
with markes celestiall,
The placynge of the Signes,
the Zodiacke rounde aboute,
The passyng of the Planetts,
the greate and eke the small:
By number hath distinction,
no cause therein to doubt:
The course of Sonne and Moone,
in seuerall race and rowte
Of Tropiques and other zones,
the Artique and Australl:
By number is showed the distance,
and of eche Meridianall.

From Horizon to Pole,
from Pole to equall line:
From eche of them the zenith,
true distaunce so to see:
By instrument Mathematicall,
and in proportion fine:
By number is brought forth,
in high and lowe degree:
The Astrolabe, Quadrant,

A.iiii.

Staffe

To the Reader.

staffe and rule or compas what it be:
Are not of right perfection,
to serue without excuse:
Except the partes diuided be,
by number to shewe the vse.

Co shewe the aspectes of Planetts,
within the ecliptique line:
Whcreby the health of man,
the learned doth procure:
Coniunction, Opposition,
Quadrant, sextile and trine:
By number is the meane,
most certainly and sure:
Hath bene, is and shalbe,
for euer to endure:
An Ephemerides for to frame,
no man can, or make well:
Except in science of numberyng,
suche as do excell.

Chowe of the world the tyme doth passe,
to make true computation:
By the course of Phæbus,
both violent and naturall:
The one by day the other by yeare,
in sondry sorte and fation.

By

To the Reader.

By number is dilated,
for knowledge bniuersall:
So by the race of Luna,
for a sure memoriall:
Of the fluddes, fulles, and faules
of Seas at tyme and tyde,
By number is made knownen,
how for euer to abide.

All Armony in Musicque,
to memoy recreatife:
By voice of men or Instruments,
to further and to frame:
With Hoode, Tence, Ray and Note,
Minnow, Long and Briefe:
Or other diuided part,
what euer it haue to name:
By proportion is appointed,
the seruice of the same:
Discordes to disappoint,
and in Musicque to disface:
By numbre is performed,
concordes to put in place.

The coniunction of Billion,
by quantity proportionall:
Of Gold, Siluer and their Alloyes,

to

To the Reader.

to euery apte degree.

By Arithmetique is furthered,
in orders many and severall,
And some of them more admirable,
then credible seme to bee,
As suche whose vocation shall,
the effecte procure to see,
Haie finde the penne a Lodestone,
an assaier to directe,
And not of lesse perfection,
then the fire to correcte.

Likewise of the premisses,
to make true valuation,
As welt in thynges misterious,
as other more in generall:
There is no meane so neare to proche,
by any maner of fashion,
As by rule moste intricate,
of Arithmetique especiall,
Farre hid from many which doe it want,
for whom it right effectuall:
Whiche if were knownen with perfectnesse,
as truthe doeth saie it is:
Would it esteme accordançlie,
and not suche knowledge mis.

The

To the Reader.

The Treasure of traffiques trades,
who wistech to procure,
With accoumptes muste bee acquainted,
his daynges to addresse:
By els the thynges he hopeth of,
moste tymeſ shall finde vnsure.
And not haue meane as els he might,
to mende it more or lesse,
For Companies and Exchaunges,
to make a sure accesſe,
And Moneis, Weigthes, and Measures,
in order to reduce,
Of ſeverall rules Arithemeticall,
required iſ the uſe.

Men, Money, Goodes, and Debtes,
or charge what els it bee,
To bryng in Debitour and Creditour,
as moſte men doe require:
The ſtate of all thynges, how it standes,
moſte needfull for to ſee,
By Arithemetique iſ accomplished,
euen as ye can deſire,
Wherofore thei heede it busilie,
affaires therewich t'attire.
In ſuche order of accoumpte kept
as other all excell:

As.

To the Reader.

As to all suche referre reporte,
whiche knoweth the ffete right well.

The tyme to me whiche appointed is,
though it were many daies,
Could not suffice me to direete,
eche thyng in order right:
Whiche might with truthe bee furthered,
to retoll the noble praise,
Of this moste singular Science,
the lode starre of greate light:
The truthe whereof is witnessed,
to many mens learned sight.
Wherefore I ende with that is passe,
wherein who would haue skill:
Procure to winne Arithemetique,
and findes the reste at will.

And here to God giue laude and praise,
blessyng his holie name,
For all his gifteſ of nature and grace,
receiued from aboue:
Who is the aucthour of all goodnesse,
and giuer of the same,
Employed vpon all earthly wightes
by his moste tender loue:
He giues vs grace to render thankes,

as

To the Reader.

as duetie doeth behoue.
Who sauе our Quene her state, and realme,
for whom also giue p̄aise,
And p̄aise her grace maie reigne in reste,
long tyme in ioyfull daies.

Vale.

¶ D. Graye.



The Booke to youth.

ALL little impests in commonweale,
whiche wisedome would attaine,
Applie your mindes with *Apollo* his traime,
and so to honour winne:
And reape the wealth more worth then gold
renoume shall bee your gaine:
With other lozes as you frequent,
Arithemetique beginne,
And euery part from firste to laste,
to memozie call you in:
Whiche heare appeares in order sette,
muchē p̄ofice to inlarge:
To suche as gaine them as they goe,
and heedynge this my charge.

The

The Contentes.

The first parte containeth sondrie partes
of Arithmetique, that is to say,

1. Numeration.
2. Addition.
3. Substraction.
4. Multiplication.
5. Division.
6. Reduction.
7. Progression.

For practise by whole Numbers.

The second parte, containeth the said par-
tes seruyng for practise of broken Num-
bers or fraccions, that is to say.

1. Numeration.
2. Progression.
3. Reduction.
4. Division.
5. Multiplication.
6. Substraction.
7. Addition.

The third part containeth the sondrie Ru-
les of proportion, furthered by vse of the
foresaid partes, that is to say.

I, Direct.

The Contentes.

1.	Direct.
2.	Backer.
3.	Double.
4.	Compound.
5.	The Rule of th̄ee. } Of Company, in time and without
6.	Of Aligation
7.	And Position.

The fourth parte containeth soundrie Rules of b̄euete, whereof the noumber is more, then needefull perticularlie to bee set doun, wherfore I referre the Reader to the whole matter, whiche to many may be found of rare and profitable effect, pleasaunt and chaunge of practise.

Of Numeration.

Numeration containeth the maner how to expresse the valewe of anie somme or number. Whiche occasion may present, beeyng small or great, and is furthered by tenne Carecters or Figures followyng, to say.

I. 2. 3. 4. 5. 6. 7. 8. 9. 10.

one two th̄ee fower five sixe seuen eight nine tenne.

i. ii. iii. iii. v. vi. vii. viii. ix. x.

The

Of Numeration.

The whiche nine Figures in proper si-
gnification of value equall to the Woodes
and Letters vnder theym sette , beyng sepa-
rate with pricke or lyne . Howbeit , beeynge
sette together and mixed without pricke or
line of separation : than an encrease of va-
lue they receiue , by vertue and propertie of
the place : wherein they stande , which places
being of number infinite , doe yelde unto eue-
rie vnyt of any Figure : ten tymes so much
in any place towarde the lefte hande , as that
same vnitie is woxthe in place next to it
towarde the right hande , the ef-
fect wherof moxe plainly may
appeare by the Table
solowyng for the
same pur-
pose
furthered .

* *

*

The

The Table of Numeration. • I

THE nine unities set aboue the vpper lyne
of the Table, doe signifie the value of euer
y unitie in the Figures against any of the
same vnder the lyne, and that by helpe of Ci-
phers made like the Letter. O. The whiche
being of no value in proper signification, the
same notwithstanding, they are of necessarie
use in practise of Arithmetique, only to kepe
the places, wherby is expressed infinite nom-

B . . . bcrs

Of Numeration.

bers, which without helpe of them, the other Figures could not performe, as by the fo-
named unities, with Ciphers before them,
the effect may appeare for the figure of one,
in the first place is there but one: But in the
second place is tenne, by helpe of the Ci-
pher set thus. 10. So in the thirde place a
hundreth thus 100. And so understand of all
the rest infinitely.

The titles written vnder the Table, serue
also to shewe the value of every unitie found
in the figures standyng in the places aboue
the titles, as 9 in the first place is but nine, in
the second place it is nine tyme ten, in the
thirde place nine hundreth, and so forthe infi-
nitely. And thus muche may seeme sufficient
for an introduction for the understandyng of
Numeration, which is to shewe the value of
any number, whiche occasion may procure to
be knownen.

Howbeit, it may seeme necessarie heare to
make distinction of certaine Termes, belon-
gyng to Nomber. Not for vse of any thereof
in this parte, but for helpe in other partes,
by the saide termes furthered, as in place of
their neede hereafter will appeare, whiche
termes are to say, Nombers, Digit, Article,
and

Of Numeration.

2

and compound, or Mixed.

The Digest numbers are not onely euery one of the nine Characters or Figures standyng alone: but also sometyme are founde amongst mixed or compound numbers remauning in wokes vnder ten. Betweene 10 and 20. Betweene 30 and 40. & so forth 100. &c.

Article nobers are suche as are furthered by Ciphers, & no mixed figures wth theim, as 10. 20. 30. 40. and so forthe infinitley.

The mixed numbers are set together thus 123. 542. 3045. and euery suche like, either sondrie figures together, or figure together and Ciphers betweene. But if a Cipher bee founde in the firste place towarde the right hande of any nomber, then euery suche nomber is an Article nomber. &c.

Of Addition.



Addition containeth the maner how to assemble, and ioyne sondrie particuler sommes or numbers, into one totall. As if three sondrie menne should owe vnto a Marchaunce, three seuerall sommes. The firste 548. li. the seconde 1346. li. and the third 15.li. The which to bringyng into one totall, ye shall set the said thre seuerall particuler

B.ij.

ticulars

20
Addition.

particulars together, one right vnder an other,
to saie: vnitie vnder vnitie, tene vnder tene,
hundreth vnder hundreth, and in like maner
infinitely in this order hereafter apperyng.

Parti-
culars.

Totall.

548
15
1346

1909

The whiche Particulars
set in order accordanlyng lie,
you shal drawe a line vnder
them, and then resorte vnto
the unities , placed euer in
the first place towardes the
right hande, all those unities added together
as 5. and 6. make 11. and therto 8. make 19.
the whiche founde, settē the dighte number,
whiche is all aboue 10. beyng 9. vnder the
line, as you see, and for 10. the Article , you
shall retaine one in memorie, to bee borne to
the seconde place, for 10. in the firste place, is
but one in the seconde place, and tenne in the
seconde place, is but one in the thirde, and so
from place to place infinitely. Thus hauyng
ended the worke of the firste place, finding 5.
6. and 8. to make 19. whereof the 9. sette un-
der the line in the firste place , and for the ar-
ticle 10. one kepte in memorie, then saie one
in memorie , and one founde in the seconde
place make 2. the whiche added to 4. standing
ouer 1. make 6. wherewith 4. standyng ouer
1. make

I . make together 10 . the whiche beyng an Article , set a Cipher vnder the line in the seconde place , and for 10 . there founde , beare one to the thirde place , the whiche put to 3 . and ffe there standyng , makynge together 9 . to bee sette vnder the line in the third place , then commyng to the fowerth and last place finding one , set for the same 1 . vnder the line in the fowerth place , and so the worke is ended , and the totall is found 1909 . li . of equal value to the perticulars .

In the practice whereof is to bee seen the order of Addition , in euery occasion thereof furthered to bee performed . And for to amplifie the effecte , take here a fewe lines in verse .

Consondrie sommes perticulars ,
one totall for to frame ,
Set them dounne right orderly ,
as worke doeth best require :
What place ye giue to any one ,
the rest let haue the same ,
So maie you well perfoyme the ffecce ,
of that you doe desire .

CTo the figures in first place set ,
firste see ye doe resorte ,

B. iij.

And

Addition.

And of the somme whiche thei doe make,
sette diget vnder line:
And for eche tenne in article founde,
one shall ye thence transpozte,
Unto the nexte and seconde place,
by memorie right fine.

¶ And so all unities ioynde in one,
by right of euery place,
And for moxe orde duely kepte,
from firste vnto the ende:
So is the worke at full performide,
required in this case,
What so euer circumstaunce,
some other maie pretende.

Hereafter is sette sunderie examples of
whole numbers in practise, whereof maie bee
seen the effecte before taught, with the orde
of prooife of the same.

$$\begin{array}{r} 56489 \\ 65842 \\ 36584 \\ \hline 158915 \end{array} \quad \begin{array}{r} 2 \\ \swarrow \searrow \\ z \end{array} \quad \begin{array}{r} 786954 \\ 978673 \\ 287954 \\ \hline 2053581 \end{array} \quad \begin{array}{r} 6 \\ \times \end{array}$$

987654

Addition.

*

$$\begin{array}{rcc}
 987654 & 3 & 897654 & 4 \\
 876543 & \cancel{\cancel{\cancel{}}} & 456789 & \cancel{\cancel{\cancel{}}} \\
 123456 & \cancel{\cancel{\cancel{}}} & 785942 & \cancel{\cancel{\cancel{}}} \\
 234567 & 3 & 249587 & 4 \\
 \hline
 2222220 & & 2389981 &
 \end{array}$$

These fower examples maie giue the learner occasion, to examine his vnderstanding in the preceptes before giuen of Addition. And also to note the order of proofe, of the same in worke of the whole numbers, wher of the effecte (I meane of proofe) consisteth in castynge awaie euery 9. founde in the simple figures of any example, without respecte of place: first the particulares aboue the line, and the remaine aboue euery 9. caste awaie, set at the upper ende of a Burgunyon crosse, in maner before apperyng. Then so many times as 9. is to bee founde in the totall of the same example, caste them awaie also, and the remaine sette at the lower ende of the saied Crosse. Then if the 2. remaines, the one at the heade, and the other at the foote of the crosse bee equall, then the worke is true, and els not, as practise of the firste example maie moze at large manifest.

B. iiiij.

To

Addition.

To proue the first of the foure former examples, repaire to the first place, where standeth the figures of 4. 2. and 9, in the particulars, whereof 9. cast awaie, there is 6. to be ioyned with 8. 4. 8. in the second place, which makynge 26. and 18 thereof cast away, the remaine is. 8. to be ioyned with 5. 8. and 4. in the thirde place, which makynge 25 and therof twise 9 caste away, the reste is 7 to be ioyned with 6. 5. & 6 in the fourth place, which makynge 24. and therof twise 9 caste of, the remaine is 6. to be ioyned with 3. 6 and 5. in the fift and last place which makynge 20. and thereof twise 9. cast awaie, the remaine is 2. to be set at the coppe of the Crosse as remain for the particulars. Then resort to the totall, where is founde 519851 and make together 29. whereof thrise 9 cast away, which is 27. the remaine is 2. to set at the foote of the Crosse for remaine of the totall, and for that the figures in the coppe and bothom of the Crosse are like and equall, therefore the Addition is well and truely made, and so for all other examples wrought in whole Nombers.

Thus muche may seeme to suffice for the woork of whole numbers, howbeit there is some

some varietie of worke in the dimitute partes, of many and innumerable chyngs of sondry Denominations. But for that it is not possible to write of all matters, I haue furthered some examples of Moneyes, waights and Measures, as mooste apte for the purpose in commune: referring all men to th' applying the same order to matters in priuate vocation, seruyng their occasions.

Firste is to be noted, that in summyng of many pereiculer sommes of Money, contayning Pounds, Shillings, Pence, Farthinges and Mites, firste giue heede howe many Mites make one Farthyng, and that beeving 6. you shall for euery 6 Mites carie one Farthyng to the place of Farthinges, and the remain in Mites vnder 6. you shall set vnder the lyne againste the Mites, whiche stande next the right hand. Also when you come to the place of Farthinges, consider that as 4 Farthinges make one penie: so for euerie 4 Farthinges carie one penie to the place of pence, and set the remaine vnder 4. vnder the line against the Farthinges likewise. As 12. Pence make one shillyng: so in the place of Pence carie for euery 12. one shillyng to the place of shillynges, and the remaine vncer 12.

Addition.

set vnder the lyne in the place of pence . Also
for euery 20 shillinges , carry one pounde vnto
the place of poundes , and the remaine of
shillinges vnder 20 set vnder the line against
the Shillynges , and so with pounds beeving
whole numbers , carry for euery 10 one from
place to place , as before is taught , &c . and for
the further understandyng of the effect , here-
after is set doun sondry exāples of Moneis .

li	s	d	q	mi.	li	s	d	q	mi.
12.	15.	7.	1.	4	25.	11.	10.	3.	4
23.	16.	7.	2.	5	48.	9.	11.	2.	3
34.	17.	9.	3.	3	59.	13.	9.	3.	2
<hr/>					<hr/>				
71.	10.	1.	0.	0	133.	15.	8.	1.	3

Other examples wherein Farthings are o-
mitted , and the mytes are boyn for euery
24. one peny .

li	s	d	mits		li	s	d	q	mi.
54.	12.	3.	17		24.	16.	3.	23	
36.	15.	7.	11	X	32.	13.	4.	18	
42.	10.	11.	9	X	53.	15.	9.	13	
65.	17.	8.	22		41.	18.	2.	16	
<hr/>					<hr/>				
199.	16.	07.	11		153.	03.	8.	22	

Here may bee seene in the formar of the 2
last

last examples, that the myles being 22.9.11.
and 17. make together. 59. whereof 48. for 2
pence taken away, the remaine is 11. to set
vnder the line, then the 2 pence ioyned with
8.11.7. and 3.d. make together 31.d. wher-
of 24 for 2 s. taken away, the rest is 7 to set
vnder the Lyne. Then the 2 still boorne to the
place of shillinges, with the other there stan-
dyng, make 56.shilligns, from the which 40
for 2 poundes taken away, reste 16. s. to set
vnder the lyne, and the 2 li. boorne to the first
place of the poundes, and ioyned with the o-
ther Figures make 19.li. wheroft the Digest
9. is set vnder the line, and for the Article.10.
one is caried to the seconde place, and with
the Figures there standyng make 19. wher-
of the Digest 9 is set vnder the lyne in the se-
cond place, and for the Article 10. one is ca-
ried to the thirde place, and so the wo:ke is
ended, wherein appeareth the varietie of
wo:ke betweene whole nombers and brokēn
in the practise of Addition.

For proofe of adding the Diminute parts
there is no better, then double perusing the
examples of Additions made. Howbeit whā
you come to the whole nombers, you haue to
consider what unities are boorne from the
place

Addition.

place next before the whole, and with them ioyned, for those boþue vnitieſ make a parte of the totall, of the ſaid whole þumbers, and therefore in making the þooſe, muſt be parcell of the perticulars, when the nienes are caſt awaie, for otherwiſe the remaine of the perticulars, after the nienes caſt awaie wil be ſo muſche leſſe than the remaine of the totall, as by þooſe of the former and laſt practiſed exaſple the effect may appeare.

The totall of the foꝝſayd exaſple being 199. the Figures make together 19. wherof twiſe 9 caſt away, reſt one to put vnder the crosse of þooſe, as doth appeare. Then adde all the Figures of the perticulars together, and they make 35. wherof thrie 9 caſt away, reſt. 8. and agreeeth not with the remayne of the totall. Wherfore to that 8 put 2 whiche in the Addition was brought from the place of ſhillinges, and that maketh 10. whereof 9 caſt away reſt one, e quall to the reſt of the totall. And ſo the worke found true.

Hereafter is ſet ſondrie examples of Addiſion of weightes and meaſures, referryng the learner to the maner heretofore ſhewed, giuyng good heede to the nomber of vnitieſ in a ſmaller denomination contained in an vnitie

Addition.

7

value of a greater, and accordyngly to beare
from place to place in forme order.

Examples of Additions of Weights.

C. q. li. onz.	C. q. li. onz.
34.3.15.13	25.3.22.15
52.2.18.11	28.1.17. 9
as you see 24.3.12.9	84.3.25.14
<hr/>	<hr/>
112.1.20. 1	139.1.10.6
<hr/>	<hr/>
C. q. li. onz.	C. q. li. onz.
53.1.21. 6	35.2.18.11
62.3.25.11	46.3.20.13
58.3.23.14	57.2.12.10
44.1.17. 8	68.3.22.14
<hr/>	<hr/>
219.3.4. 7	209.0.19.00

To make these forme Additions of
weightes and suche like. Firste it behoueth
the learner to understande, that the hundredth
waight at the Common Beame in London
concafneth 112. lib. haberdepoiz, the halfe
hundredth 56. lib. the q. 28. lib. & the pound
16. onz. The whiche knownen, carry in Addi-
tion.

Addition.

tion for euery 16. onz one pound to the place
of lib. for euery 28. lib i. q. to the place of
quarters, for euery 4. quarters one hundredeth
to the place of hundredethes, and so the worke
is well performed.

Examples of Addition of Measures.

yards	q.	nayles.	yards	q.	nayles
3 1 2 4 7. 3. 2			7 5 6 8. 1. 2		
5 7 6 8 9. 2. 3			6 7 5 6. 2. 3		
6 8 7 5 4. 3. 3			8 5 7 3. 3. 2		
<hr/>			<hr/>		
1 5 7 6 9 2. 2. 0			2 2 8 9 8. 3. 3		
<hr/>			<hr/>		

Yards foote Inch.	Yards foote Inch.
6 5 6 2. 7	7 8 6 9. 1. 5
6 4 5 — 1. 9	6 5 4 3. 2. 8
7 8 4 — 2. 8	9 5 8 6. 2. 10
9 7 8 — 1. 3	8 5 9 4. 1. 11
<hr/>	<hr/>
3 0 6 5 — 2. 3	3 2 5 9 4 2 u. 10
<hr/>	<hr/>

To make the former Additions of mea-
sures and such like, it behoueth the learner
to understande that the yarde is diuided into
yondry

sondry Diminute partes, that is to say. For the measuring of Veluet. Silkes. Clothe, Lace, and sondrie other thinges. The yarde is diuided into 4 quarters, and euery quarter into 4 naples, and accordingly the addicions of suche partes furthered, as before appeareth. And for the measuring, of Timber, Wainscottes, Seelings, Pauements, Land, and suche like thinges, the yarde is diuided into 3. foot, the foote into 12 Inches, and the Inch into 3 Barly cornes ordained by Statute for Standard measure of England, and according to such Diminute partes, the Addicions of those denominations are furthered, as before likewise may appeare.

Substraction.

Substraction containeth the maner how to deduct or take away a smallar somme or Nomber from a greater, by practise wherof is found and brought forth a remaine sought for & desired, as if one man owe vnto an other 3 5 6 li. wherof he hath paid 2 3 4 li. and would knowe what rested vnpaid. Then when the paiment is rebated from the debte, the remaine will appeare as practise by the same sommes the effect will manifest.

Debte.

Subtraction.

	P.
Debte —	3 5 6
Payde —	2 3 4
Reste —	1 2 2

Here is to bee perceaued
the debt beyng the grea-
test somme is placed up-
permost, and the painēts
vnder the same. Unity vn-
der vnitie, ten vnder ten,
and hundreth vnder hundreth, and a line dra-
wen vnder all and so made apt for the worke.

Then to perfoyme the Substraction, resolt
to the first place, which is of vnities and say.
4 payde taken out of 5. of debt, the remayne
is 1. to set vnder the lyne in the firste place,
then say 3 payd out of 5 of debt in the second
place rest 2. to be set vnder the line in the se-
cond place also, 2 out of 3 in the place of hun-
dretches rest 1. set vnder the line in the third
place, and so the worke ended, wherein ap-
peareth that 2 3 4 li. taken out of 3 5 6. the
remaine appeareth 1 2 2 li. &c.

When you haue made a substraction, and
would proue, whether you haue made a true
resse or not, then adde together the reste, and
the painēts, and if the totall agree with the
firste debte, then the Substraction is true, or
els not. Whereof the practise hereafter shew-
eth the effecte by the same numbers, wher-
of the former substraction was made.

Debt.

Subtraction.

9

Debte.	— 3 5 6
Paied.	— 2 3 4
Reste.	— 1 2 2
Proofer.	— 3 5 6

Here doeth appere that 2. of rest, added to 4. of paiment, maketh 6. vnder the line in the firſte place: also 2. reste with 3. paied, maketh 5. vnder the line in the ſeconde place, and ſo 1. reste with 2. paied, is 3. to ſette vnder the line in the thirde and laſte place: and ſo the totall beyng 3 5 6. li. equall to the debte, proue the worke true, whiche otherwife would not bee.

Thus muche maie ſeem ſufficiente for the woanke of subtraction, where the figures of the leſſer number, are ſmaller then the figures ſtandynge right ouer them in the greater number, but when the contrary is founde, then the woanke is of more diſſicultie, as by example.

Debte.	— 3 5 7 6. li.
Paied.	— 2 9 8 9.
Reste.	— 0 5 8 7.
Proofer.	— 3 5 7 6.

Here reſortyng to 9. in the firſte place of paiment, to be taken out of 6. ouer it, whiche can not bee doen, therefore borowe C.j. an.

Subtraction.

an unitie of 7. in the seconde place of the debte
to ioyne with 6. in the first place, and so haue
you 16. from the whiche 9. paied, rebated,
reste 7. vnder the line in the first place. Then
not forgettyng the unitie, borrowed of 7. in
the seconde place, to make the woorke of the
first, saie one that was borrowed with 8. in the
seconde place of paiment, maketh 9. to be ta-
ken out of 7. aboue, whiche can not be, wher-
fore in former oder, borrowe an unitie of 5.
in the third place of debte to make 17. in the
seconde from the whiche 9. aforesaid reba-
ted, the remaine is 8. vnder line in the se-
conde place. Then saie as before, L. borro-
wed of 5. in the thirde place ioyned with 9.
vnder 5. maketh the 10. to bee rebated from
5. ouer 9. whiche can not be, but by the helpe
of an unitie, borrowed of 3. in the fowerth
place, and so 10. from 15. reste 5. vnder the
line in the third place. Lastlie saie one bor-
wed of 3. with 2. paied in the fowerth place,
make thre to bee taken out of thre of debte
in the same place, and so remaineth nothyng,
wherefore a Cipher is sette vnder the line,
in the fowerth and laste place, and so the
woorke ended. Wherin doeth appeare that
2989.L. Substracted from 3576.L. the
rest

Subtraction.

10

rest unpaied is 587.l. The proofe whereof
is by addyng the paimentes and remaine to-
gether, and the totall thereof agreeing with
the debte, proueth the woynke true, as before
is caught.

A like or more difficultie is founde in
woynke of Substraction, when the places in
the debte haue fewe or no figures, but Sup-
plied with Ciphers, for that the woynke re-
quireth a borrowyng of an unitie in euery
place of wante, from one place to an other,
unto the ende, as by example the effecte maie
appeare.

Debt. — 302003.l.

Paied. — 135976

Reste. — 166027

Proofe. — 302003

Here 6, out of 13
made by helpe of
one borrowed in
the seconde place
of the debt rest 7.
under the line for
the firste woynke.

Then to paie that was borrowed saie, one
and 7. make 8. to bee taken out of 10. in the
seconde place, by the helpe of one borrowed
in the third place, and so remaineth 2. under
line in the seconde place. Againe, one with 9
in the thirde place, make 10. to bee taken out

C.ij.

of.

Substraction.

of 10 aboue made by one borrowed in the 4. place, and the reste is nothing, and therefore a Cipher vnder line in the thirde place. Also in the same maner, one and 5. maketh 6. to be taken out of 12. made by one borrowed in the fiftie place, and so resteth 6. vnder line in the fourth place. So again one and 3. make 4. out of 10. and so reste 6. in the fiftie place. Lastlie one borrowed with one in the sixt and laste place, make 2. to bee taken out of three ouer, and so reste 1. in the same place, and the wō̄ke finished, and as aforesaid, the paimentes and restes together, makynge againe the debte, proue the wō̄ke true.

Thus muche maie seem sufficiente for the practise of Substraction in whole numbers: howbeit to further the understandyng of the learner, take these fewe lines in verse.

¶ When diget of debt, is not so greate,
as that in paiment made,
Then nexte place lende, to wantyng frende,
to helpe this pleasant trade.
And in repaire, one with thee beare,
to payng seconde place:
So with his feare, whiche standeth theare,
paie thou that borrowed was.

Thus

Thus to procede, in worke with spedē,
from place to place I saie:

The restes in fine, set vnder line,
agreying to thy paie.

When restyng due, with paiments true,
the debte againe doe make.

Then is well doen, whiche was begon,
that dare I vndertake.

When occasion presenteth wōkēs of Sub-
straction, of diminute partes, of what deno-
mination so euer. Then like consideration is
to bee had (as was noted in Addition) what
quantitie of vnicies in one denomination, is
conceined in an vnitie of an other denomina-
tion: and accordynglie make the Substrac-
tion, whereof the effecte in sondrie examples
followyng maie appeare.

Of Money.

l.	s.	d.	mites.
----	----	----	--------

Debte.	- 65.	17.	16.	19.
--------	-------	-----	-----	-----

Paied.	- 52.	12.	9.	15.
--------	-------	-----	----	-----

Reste.	- 13.	05.	7.	4.
--------	-------	-----	----	----

Proofe.	- 65.	17.	16.	19.
---------	-------	-----	-----	-----

C.ijij.	Debte.
---------	--------

Substraction.

	Li.	ſ.	d.	mites.
Debte.	— 8	7	6	4.
Paied.	— 5	8	9	7.
Reste.	— 2	8	6	6.
Proofer.	— 8	7	6	4.

In the former of these twoo examples, the wo^rke is performed with greate facili-
tie, howbeit in the seconde there is founde
more difficultie, for that the figures in the
paimentes are for the moste parte, greater
then in the debt: wherfore in the place of mi-
tes wanting, borrowe one penie, whiche is
24. mites, and then performe the wo^rke, so
borrowe one shillyng, whiche is 12.d. to sup-
plie the wante of pence. Likewise borrowe
1.Li. whiche is 20. ſ. to supplie the wante of
shillynges, and then your restes lette doun,
and the unities borrowed, boyn in memorie
truely, to aunswere every one in his place,
then you can not faile to make good wo^rke.

COther examples where in the debt
is no figures, but one in
the laste place.

Debte.

Subtraction.

12

£. s. d. mites.

Debte. — 500. 0. 0. 0.

Paid. — 368. 11. 9. 16.

Reste. — 131. 8. 2. 8.

Proove. — 500. 0. 0. 0.

£. s. d. mites.

Debte. — 4032. 0. 0. 0.

Paid. — 2978. 15. 10. 17.

Reste. — 1053. 4. 8. 16. — 7.

Proove. — 4032. 0. 0. 0.

Examples of Draughtes.

£. s. d. onz.

Boughes. — 52. 3. 16. 11.

Received. — 37. 2. 12. 8.

Reste. — 15. 0. 4. 3.

Proove. — 52. 3. 16. 11.

£. onz. 40. £.

Subtraction.

C.	quar.	Pi.	onz.
40.	0.	0.	0.
25.	3.	16.	14.
14.	0.	11.	2.
40.	0.	0.	0.

Examples of Measures.

yardes.	quar.	nailes.
5684.	3.	2.
3879.	2.	1.
1805.	1.	1
5684.	3.	2.

yardes. quart. nailes.

3000.	0.	0.
1978.	3.	2.
1021.	0.	2.
3000.	0.	0.

Bought,

Subtraction.

13

yardes, m foote. inches.

Bought.—6523. in qu2. glo 9m. 10m. 11m.

Receites 4879.10.2.5.

Reste. — 1644. **Q.** 172, **2**, **12**.

Wooofe. — 6 5 2 3. 2. 7.

yards. foote. yngches.

8000.	O.	O.
5684.	I.	IO.
2315.	I.	2.
8000.	O.	O.

Multiplication.



Multiplication conteineth the maner how to finde the number of unities, of a smaller denomination, in an other number of unities, in a greater denomi- nation contained. The effect whereof is better to understande with fewe examples, then with many wordes. And for that it is necessarie for every learner, to understande the

C.H.

content

Multiplication.

contente or sonme, produced by multiplication of one diget by an other, before he can muche profit without the same, therefore is prepared a Table for the effecte thereof: and notes giuen for vnderstanding, and vse of the same, as hereafter appeareth.

The Table of Multiplication of digettes,

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30	36	42	48	54
7	14	21	28	35	42	49	56	63
8	16	24	32	40	48	56	64	72
9	18	27	36	45	54	63	72	81

To understand the vse of this Table, note that the Digettes Multiplicatours are set in 2 Collombes, to saye, in the highest side of the table, in places distinct from one vnto .9. and likewise in the left ende of the Table, al-

so from 1 vnto 9. And all the rest of the table, except those 17. places, wherein the Digets do stand, are places for the severall products of Multiplication of one of the sayd Digets by an other. And when you would know the somme or product of any such multiplication, as for example, of 5 and 7. take the one in the one collumne, and the other in the other, and in the place where the 2 Collomnes meete, wherein the saide figures doe staude: the one proceedingyng from one ende to the other, and the other descendyng from the higher side to the lougher, there shall you finde 35. for product or somme sought for, and in like order may you finde any other desired.

The effect furthered in the former Table, Let euery desirous learner haue perfectly in memory; for that the same had the workes of multiplication are performed with more facilitie, then by wante thereof is possible. And for aide of memorie note, whē 2 digets are to be multiplied together, consider if any of the same may bee parted in halffes, and so found multiply the contrary diget by the one halfe, and the double of that product is the somme ye would haue.

For example when 7. is to be multiplied
by .

Multiplication.

by 6. you see 6. may be parted into twise 3.
wherfore say 3 tymes 7. the contrary Digest
maketh 21. then by former note the double
thereof beyng 42. is the product of 6. and 7.
multiplied together, and so of all other.

When 9. is to be multiplied by 9. 7. or 5.
then shal you put 9 in 3 partes, as into thise
3. and whith one of the sayd partes multiply
the contrarie digest as 5 beyng admitted for
example, saiyng 3 tymes 5 is 15. the whiche
taken 3 tymes, maketh 45. which is the pro-
duct of 9 and 5 multiplied together.

Likewise for 7 by 9 say 3 tymes 7. is 21.
the whiche trebled, maketh 63. the product
desired.

Also for 9 by 9. saye 3 tymes 9 is 27. the
which trebled maketh 81. the product sought
for.

Note that when 9 is to bee multiplied by
8. & 6. or 4. it is better to mediate or halfe a-
ny of the same, then to tripartate or put 9 in-
to three partes.

Wherefore when 9 is to be multiplied by
8. say 4 beeyng the halfe of 8 and multiplied
with 9 maketh 36. The double whereof be-
yng 72. is the product of 8 and 9 beyng mul-
tiplied together.

So

So for 9 by 6. say 3 the halfe of 6 multiplied in 9. maketh 27. the double whereof beyng 54. is the product of 6. tymes 9. &c.

More to be sayd for the vnderstanding of the former Table, or maner to finde the product of any 2 Digets, multiplied the one by the other, might seeme superfluous, wherefore now I will shewe the order of Multiplication of one number of figures by an other.

First there is to bee noted in Multiplication thre Nombers by severall names. Distinct, that is to say, the Multiplicande, which is the nomber to bee multiplied, the Multiplicatour, whiche is the multiplier, and the Product whiche is brought foorth by the worke, the effect whereof to be shewed by example, may be performed in sondry and infinite matters, whereof take this that followeth, to mee seemyng very apte for the purpose, for an entraunce thereunto.

If you bye 5 6 7 8. Yarde of Clothe, costing 86. pence euery yarde, & would know how many pence the whole amounteth, then the nomber of yarde's shalbe Multiplicande, and stande vppermost in worke, and the nomber pence shalbe set vnder the same for Multiplicatour. Unitie of pence vnder unitie of yarde,

Multiplication.

yardes, tenne vnder tenne, and so forth, when both partes haue the places supplied, with Figures. Hundreth vnder hundreth , thousandes vnder thousandes, and so infinitely in maner, as in examples heare may appeare.

$$\begin{array}{r} 5678 \\ \times 86 \\ \hline 34068 \\ 45424 \\ \hline 488308 \end{array}$$

The whiche 2 Numbers sette downe as you see , and a Lyne drawen vnder theim , then the Product of the worke wilbe so many Pence , as will paye for 5678 yardes of clothe, at 86 Pence the Yarde , whiche is 488308 pence , as appeareth in the totall of the particular Productes added together , as the order of woork requireth , whereof the maner followeth . Firste you shall resorte to the place of Unities , and saie , 6 tymes 8. is 48 whereof the Digest 8 put vnder the lyne in the place of unities , and for the article 40. you shall retaine in memory 4 unities to bee borne to worke of the second place . Then say 6 tymes 7 is 42 . and 4 retained in memory , maketh 46 in the seconde place , whereof the Digest 6. is set vnder lyne , and for 40 retain 4 in memory to bee borne to the worke of the thirde place . Then saie , 6 tymes 6 is 36 . and

¶ In memory maketh 40 an Article number, and therefore put a Cyphe under the line in the third place, and retain ¶ in memory (that is) for every 10. of the Article one, to bee boyned to the wo:ke of the fourth place. Then say, 6 tyme s 5 is 30. and 4 in memory is 34. whereof the Digest 4 is put vnder line in the fourth place, and for the Article 30. beare three to the fift place, and because the Multiplicand hath no figure in that place, therfore put 3. retained in memorie vnder the line in the same place, and so the wo:ke is ended, for. 6. the firsste figure in the Multiplicatour, whereof the Product perteineth, is 34068. as doth appeare. Then resorte to 8. in the second place of the Multiplicatour, and therewith multiply euery figure of the multiplicande in former order saiyng. 8 tymes 8. is 64. wherof put the Digest 4 vnder the line right vnder 8. the multiplicatour, and beare 6. for the Article 60. in minde for the seconde wo:ke, and say, 8 tymes 7. is 56. and 6 in memory maketh 62. wherof put 2. vnder line in the second place of that seconde ranke, & beare 6 for the next wo:ke, saiyng, 8 tymes. 6. is 48. and 6. in minde maketh 54. wherof put 4 vnder lyne and beare. 5.

Multiplication.

for the Article to the next wo^rke saying, 8
tymes 5 is 40, and 5 to memory maketh 45.
whereof put 5 vnder line, and for the Article
carry 4 to the next place where no Figures
founde to make further wo^rke, set it vnder
the line, and so the multiplication is ended.
Then adde together the 2 perticuler Pro-
ductes, and the totall thereof will containe so
many Pence as dooth amounte of 5678.
yardes of clothe at 68 d^ouerie yarde, which
is the effect desired in the example furthered,
and so of other wo^rkes.

Here is to benoyed, that for euery Figure
in the multiplicatour of any example, there
is a perticuler Product, and euery Digit
made in the firste wo^rke of any of the same
shalbe set vnder the Figure Multiplicatour,
in what place soever it stande, and the Arti-
cle numbers to bee transpozed for euery 10.
in any place founde one to be carried by me-
mory to the next place toward the left hand,
to bee ioyned with the unities made by the
wo^rke in the sayde place. All and euery the
whiche preceptes well vnderstanding, are suf-
ficient for the practise of Multiplicatio, how-
beit hereafter is set downe sondry examples,
wherein the effect aforesaide doth appeare,

and

and for a further ayde to the learner hereafter are furthered a fewlynes in Verse.

By Multiplicator, and Multiplicand,
a Product out to finde:
Giue eche his place, as taught thee was,
that beare thou well in minde:
What doth amount, in multiplied accompt,
set Digeſt vnder line:
Of Figure together. 2 .one by the other,
in firſt place doe affigne:
The Articles conuey, by memory I ſay,
to next and ſecond place:
To worke there made thou ſhalt them adde,
and ſo holde on thy race.
Thus maist thou haue a Product braue,
pretended by thy paine:
If thou proceed as worke doth neede,
the ende till thou attaine:
Of Figures iust, thou maist mee truſt,
in multiplier to be ſeen:
So many will there productes appeare,
iu order as I wene:
The whiche found out, then go about,
in one theim all to frame:
So haſt thou ended that was pretended,
without ſuspect of blame.

D.j.

Hereafter

Multiplication.

Hereafter are set downe sondrie examples
for the practise of multiplication, by 3, 4, and
5. Figures in the Multiplicatours.


 3 6
 6 8

$$\begin{array}{r}
 6547382 \\
 \times 345 \\
 \hline
 32736910 \\
 26189528 \\
 19642146 \\
 \hline
 2258846790
 \end{array}$$

$$\begin{array}{r}
 47869524 \\
 \times 132 \\
 \hline
 95739048 \\
 143608572 \\
 47869524 \\
 \hline
 6318777168
 \end{array}$$



Multiplication.

18

$$\begin{array}{r}
 & 7654321 \\
 \times & 5462 \\
 \hline
 & 15308642 \\
 & 45925926 \\
 & 30617284 \\
 & 38271605 \\
 \hline
 & 41807901302
 \end{array}$$

$$\begin{array}{r}
 & 12435264 \\
 \times & 8643 \\
 \hline
 & 37305792 \\
 & 49741056 \\
 & 74611584 \\
 & 99482112 \\
 \hline
 & 107477986752
 \end{array}$$

Dif.

987

Multiplication.

$$\begin{array}{r}
 987654 \\
 \times 51423 \\
 \hline
 2962962 \\
 1975308 \\
 3950616 \\
 987654 \\
 4938270 \\
 \hline
 50788131642
 \end{array}$$

6 3

$$\begin{array}{r}
 92837451 \\
 \times 15263 \\
 \hline
 278512353 \\
 557024706 \\
 185674902 \\
 464187255 \\
 92837451 \\
 \hline
 1416978014613
 \end{array}$$

6 3
8 3
6

The

The proofe of Multiplication is made by casting away all the Neines first in the multiplicand & the remaine set at the one side of a crosse, thā the remaine of the multiplicator set at the other side therof. The whiche 2 remaines multiplye together and from the result thereof caste away all the nyenes and set the remaine at the vpper ende of the crosse. Lastly caste away all the nienes in the product, & set the remain at the foote of the same crosse, the whiche performed, if the remaines at the toppe and foote of the crosse be equall, the worke of that multiplication is true, and else not, as by an example may appeore.

$$\begin{array}{r}
 & 3 & 4 & 5 & 6 & 2 & 7 \\
 & 4 & 5 & 3 & 2 \\
 \hline
 & 6 & 9 & 1 & 2 & 5 & 4 \\
 1 & 0 & 3 & 6 & 8 & 8 & 1 \\
 1 & 7 & 2 & 8 & 1 & 3 & 5 \\
 1 & 3 & 8 & 2 & 5 & 0 & 8 \\
 \hline
 & 1 & 5 & 6 & 6 & 3 & 8 & 1 & 5 & 6 & 4
 \end{array}$$


In tis multiplicande of this example,
the Figures make 27. whiche is 3 tymes 9
D.ij. and

Multiplication.

and nothyng remaineth, wherefore I set a Cipher at the right side of the Crosse as you see Likewise the Figures of the multiplicatour make 14. whereof 9 caste away, the remaine is 5. at the left side of the crosse. Then saying 5 tymes nothyng is nothyng, wherefore I set a Cipher at the upper ende of the Crosse. Lastly the Figures of the product together make 45. which is 5 tymes 9. and nothyng remaineth, wherefore I set a Cipher at the foote of the Crosse. And so that the toppe and foote of the crosse are like, I know thereby the woorke of that multiplication to be good, and so of all other, wherof the effect appearceth in the former examples. Howbeit for that in the prooife of the former example, the Ciphers are to many to shewe the whole effect of the order of prooife, here is giuen another example to amplifie the same.

$$\begin{array}{r}
 & 4 & 7 & 3 & 5 & 6 \\
 & 2 & 5 & 7 & 3 & - \\
 \hline
 & 1 & 4 & 2 & 0 & 6 & 8 \\
 & 3 & 3 & 1 & 4 & 9 & 2 \\
 & 2 & 3 & 6 & 7 & 8 & 0 \\
 & 9 & 4 & 7 & 1 & 2 & - \\
 \hline
 & 1 & 2 & 1 & 8 & 4 & 6 & 9 & 8 & 8
 \end{array}$$



32

In the multiplicande of this example the figures together make 25. whereof twise 9 cast awaie, reste 7 put at the right side of the Crosse. The figures of the multiplicatour make 17. whereof once 9 cast away rest 8 at the left side of the crosse. Then 7 and 8 being multiplied together make 56. wherof 54 cast awaye, so 6 tymes 9 caste away reste 2 to set at the vpper ende of the Crosse. Lastly the figures of the product make together 47. wherof 45 for 5 tymes 9 caste away reste 2 to set at the foote of the Crosse. And the figures of the toppe and foote of the Crosse being like and equall, proueth the worke true, as aforesaid.

An other perfect and sure order of prooфе,
of Multiplication is made by Diuision,
the which here I omit, till I haue shewed
the practise of Diuision, which hereafter
followeth.

Diuision.

Diuision containeth the maner how
to shewe the Nomber of tymes,
that a small somme or nomber is
contained in a greater, and the ef-
fect is procured in occasions infinite. And to

D. iiii.

the

Division.

the practise therof belongeth three numbers by severall names distinct, that is to say. The Diuidend, whiche is the nomber to be diuided. The Diuisor, whiche is euer in whole nombers lesser then the Diuidende. And the Quotient whiche sheweth the nomber of tymes, that the Diuisor is contained in the Diuidende. As for example if occasion procured to bee knownen how many Poundes were contained in 396 Nobles. Then 396 is diuided and the nomber of Nobles contained in one pounde, whiche is 3. muste bee Diuisor. The whiche Diuidend diuided by the said Diuisor, the Quotient wilbe found I 32. Whiche are so many tymes as 3 Nobles whiche is 1 Pounde, are contained in 396 Nobles, whereof the effect by example hereafter is practised.

000
396 | 132 |
333

Here the Diuidend 396
beyng sette doun, then the
Diuisor 3. is set vnder 3.
in the Diuidende, and the
woke begonne in the last place towarde the
left hand, for that is the order in woorkes of
Division, though therein it bee contrary to
the other partes whiche euer beginne at the
right

right hande : then is to be sought how many times 3 . the diuisor is found in 3 , þ diuidend . and that being one tyme therfore 1 is put in a place separare from the rest as you see , & so the first wo^rke ended and nothing remaining in 3 . the diuidend , and therefore it and the diuisour is cancellled with a dashe of a Penne , thereby to signifie the wo^rke to be ended in that place . For the second wo^rke 3 the diuisour is set vnder 9 . in the diuidend , and is founde to be contaided thererin 3 times , and therfore 3 . is put in the Quotient , and so the seconde wo^rke ended , and therefore 9 and 3 cancellled as in the former wo^rke . Lastly , then the diuisour is put vnder 6 . in the diuidend , and is found to be contained thererin 2 tymes , and nothyng remaineth , wherefore 2 is put in the Quotient , and the whole wo^rke is ended . And by the Quotient is found that 1 Pounde beyng 3 Nobles , is contained in 396 Nobles 132 tymes , whiche is the effect required in the wo^rke .

Here is to bee noted , that the Ciphers set ouer every figure of the deuidende , are there sett to signifie nothyng to remaine , after the Wo^rke in the place , made vnder any of

D.v. the

Diuisiōn.

the saied Ciphers, and oft tymes putte so in
worke, more for helpe of memorie, then for
other neede.

Note also, that when the laste Figure of
any diuidende, is lesser then the divisor, then
the divisor shall bee sette vnder the Figure
in the laste place sauue one of the diuidende,
and so worke in former order. How bee it, to
make the matter more plaine, the effecte shal
appeare in an example followyng.

If you would knowe how many poundes
are contained in 2758. Crownes, then for
that 4. Crownes make one pounde, therefore
4. muste bee divisor, and sette vnder the diui-
dende, in the laste place sauynge one, for that in
2. in the laste place 4. is not contained, and so
the worke practised as followeth.

$$\begin{array}{r} 3\ 3(2 \\ 2\ 7\ 5\ 8 \quad | \underline{6\ 8\ 9\frac{3}{4}} \\ 4\ 4\ 4 \end{array}$$

In this example you maie see 4. the divisor
sette vnder 27. wherein it is contained
6. tymes, and 3. remainyng: therefore 6. is
put in the Quotient, and 3. the remaine is
set over 7. and so the firste worke ended, and
the

the diuisor in that place, and the 2 7 . ouer it
canselled, as afore taughte . Then for the se-
conde wo^rke, the diuisor is set vnder ffe in
the dividende, the whiche with 3 . remainyng
of the former wo^rke, maketh 3 5 . wherein
the diuisor 4 . is contained 8 . tymes, and 3 .
remainyng, wherefore 8 . is putt in the quo-
tient, and 3 . remainyng set ouer 5 . and so the
seconde Wo^rke ended , and therefore the
diuisor , and 3 5 . ouer it canselled in former
order . Againe for the thirde and laste wo^rke,
the diuisor 4 . is set vnder 8 . the whiche with
3 . remainyng in the former wo^rke, maketh
3 8 . wherein the diuisor 4 . is contained 9 .
tymes, and 2 . remaineth putte ouer 8 . and so
the whole wo^rke endes , the diuisor and the
3 8 . being canselled as the other, and the 2 .
remainyng of the whole wo^rke, is separate
from the reste, to signifie the same to bee a re-
maine of the wo^rke, and not sufficient to cō-
taine 4 . the diuisor . By the whiche wo^rke
doeth appcare, that in 2 7 5 8 . Crownes, 4 . of
the same makynge one pounde , is contained
in the whole somme 6 8 9 . tymes, and two
Crownes remainyng , whiche is the effecte
sought for by the wo^rke, wherein the perfect
order of diuision is shewed, where the diuisor
is

Diuision.

is one figure onely.

Howbeit, when the diuisor containeth a number of figures, as more then one bee it fewe or many: Then the quotient shall ever bee made with that figure of the diuisor, whiche standeth next toward the left hande, and none other. And the quotiente so made, shall bee multiplied by the reste of the figures of the diuisor, one after an other, and euerie producte shall bee rebated out of the diuidende, standyng right ouer the figure of the diuisor, whiche maketh any of the saied productes from place to place throughout, for euerie figure of the quotiente made. And the quotient shall bee made no greater then that a remaine maie bee lefte in euery worke, out of whiche the saied productes maie bee taken accordanly, as in example practized hereafter, the effecte more plainly maie appeare.

If you would knowe how many pence are contained in 56847. mites. Then the number of mites making one penie, shall bee diuisor, whiche is 24. and sette vnder the diuidende thus.

xx(i)

$$\begin{array}{r}
 12(1 \\
 244 \\
 1860(5 \\
 56847 \quad | 2368. \\
 24444 \\
 222
 \end{array}$$

In this example are 4. Figures in the quotient, the whiche are made by 4. severall workes in the diuidend. And for the first you shall set 24. the divisor, vnder 56. in the diuidende, and saie, how many tymes 2. in 5. and that is 2. tymes, whereof 2. you shall put in the quotient, and sette 1. remainyng ouer 5. Then the 2. in the quotient, multiplied by 4. in the divisor, produceth 8. to bee taken out of 16. remaining in the diuidend ouer 4 and so the first worke ended 8. remainyng of 16 set ouer 6. then shall you cancell your divisor 24 and 56 in the diuidend with 1 remainning ouer 5. and so you haue finished all thin- ges belonging to the first worke. Then shall you set your divisor 24. vnder 88 and saye, howe many tymes two the divisor in 8. ouer it, and that is 3 tymes, and 2 remaineth to set ouer 8. The which 3 put in the quotient, and multiply the same by 4 in the divisor, and the product being 12, rebated out of 28. rest 16 ouer

Diuision.

ouer 2 8. then cancell all the Figures of the Diuisor the diuidende and of the remaines vnder it behinde 16. and so the second wo^kke is ended . Thirdly you shall put your diuisor 2 4 vnder 1 6 4 and say, how many tymes 2 in 16. and that is 6 tymes, & 4 remaining to set ouer 6. 16 beyng caucelled, then 6 multiplid by 4 in the Diuisor, the product is 2 4 to bee taken out of 4 4 so resteth 20 ouer 4 the diuisor, and the thirde woo^kke ended, and then is to be cancelled all figures of the diuisor diuidende, and remaines vnder and behinde 2 0. Lastly, you shall put the Diuisor 2 4 vnder 2 0 7 and saye how many tymes 2 in 2 0 ouer it, and that is 8 tymes, and 4 remaineth ouer the cipher in the second place: then 8 in the quotient multiplied by 4 in the Diuisor produceth 3 2. to bee taken out of 4 7. and there remaineth 1 5. and the whole woo^kke ended, and therefore the sayde 1 5 is to be separated from all the other figures of the worke plainly to appeare, all the other beyng cancelled . And so is found that in 5 6 8 4 7 mites is contained 2 3 6 8 pence, and 1 5 mites remainyng, whiche is the effect in the wo^kke required.

Because that it is harde for a learner to understand

understande the woorkē of Division where the example is practised in one place. Therfore in an other example the woorkes shall haue so many severall distinctions as there shalbe figures put in the quotient: for euerie figure of the saide Quotient doth require a perticular woorkē, whiche is not easie to bee perceiued in the former example, as in an other folowynge may appearc.

If you would diuide 8 5 6 9 4 2. by 3 5 4. you shall set downe the diuidend first, and the diuisor vnder, as before is taught, and as hereafter appeareth.

$$\begin{array}{r} 1 \\ 2 \ 4 \ 8 \\ 8 \ 5 \ 6 \ 9 \ 4 \ 2 \\ 3 \ 5 \ 4 \qquad \boxed{2} \end{array}$$

Then say how many tymes 3 the diuisor in 8. ouer it, and that is 2 tymes and 2 remaineth, wherefore 2 for the tymes is put in the quotient, and the 2 of the remaine is put ouer 8. and so the woorkē for the Quotient makynge in that place is ended. Then 2 in the Quotient muste bee multiplied by 5 in the diuisor, and that maketh 10 to bee takē out of 25 ouer it, and so will remain 15 ouer 5, and

Division.

5. And all the figures vnder 15 to bee cancelled. Also you must multiply 2 in the quotient by 4 in the divisor, and that maketh 8. to bee taken out of 6 ouer 4 whiche can not be but by borowynge an unitie out of 5 to make 16. by order in Substraction, from whiche 8 aforesaid rebated, the rest is 8 ouer 6, and 4 ouer 5. and so the whole woorke for making the first figure putt in the quotient is ended.

To procede in the woorke, you shall sette downe the deuideude, whiche is 148942. and set the divisor vnder it thus.

$$\begin{array}{r} 273. \\ \times 48942. \quad | 4. \\ \hline 354. \end{array}$$

Then saie, how many tymes 3. in 14. that is 4. to bee set in the quotient, and 2. remaining ouer 14. the saied 14. and 3. in the divisor cancellled. Then saie 4. in the quotient, multiplied by 5. in the divisor, maketh 20. to be taken out of 28. ouer 5. & there remaineth 8. Likewise saie, 4. in the quotient, multiplied by 4. in the divisor, produceth 16. to be taken out of 9. whiche can not bee, but by lye of an unitie, borrowed of 8. to make 19. then 16. out of 19. resse 3. ouer 9. and 7. ouer 8. and

8. and so the wo^rke for makyng the seconde
Figure in the quotient ended, all the figures
cancelled vnder and behinde 73.

For the thirde wo^rke, you shall set doun
the diuidende remainyng, whiche is 7342.
and the divisor vnder it, thus.

X26.

7342. |2.

354

Likewise saie, how many tymes 3. in 7.
that is 2. to bee set in the quotient, and there
remaineth 1. ouer 7. beyng causelled, and al-
so 3. the divisor vnder it. Then multiplie 2.
in the quotiente, by 5. in the divisor & that is
10 to be taken out of 13. and so remaineth 3
the 1 ouer 7. beyng cancelted. Also multi-
plie 2. in the quotiente, by 4. in the divisor,
and the resulte is 8. to bee taken out of 4.
whiche can not bee but by helpe of an vultie,
borrowed of 3. and so 8. out of 14. reste 6. o-
uer 4. and 2. ouer 3. all the figures vnder
and behinde 26. beeyng cancelled, and so the
wo^rke for the third figure in the quotient
ended.

For the fowerth and laste wo^rke, you shal
set doun the diuidende remainyng, whiche

E.j. is

Diuision.

is 262, and the divisor vnder it, thus,

262. 10.

354.

Finallie saie, how many tymes 3, in 2.0. ouer it, and that is no tyme, wherefore sette a Cipher in the quotient, to supplie a place, and cancell 3. Then saie 5. tymes nothing is nothing to bee taken out of 6, and therefore 6, remaineth ouer 5, beyng cancelled. Likewise saie 4. tymes nothing is 0, to bee taken out of 2, ouer 4, and therefore 2, remaineth, and 4, to bee cancelled, and so the whole worke ended, the quotient made at fower severall woorkynges, and founde to bee 2420, and so many tymes is the divisor 354 contained in the dividend, 856942, whiche is the effecte in the diuision sought for, and required. And the remaine of the woork is but a parte of a tyme, and therefore to bee set ouer the divisor thus $\frac{262}{354}$, whiche signifieth that the divisor is not contained in the same, and therefore appeareth a remaine, and accordingly made to appeare.

And where for finding of the former quotient, there hath been made 4. particular workes, to saie, for euery figure or Cipher, one

one severall practise, you shall understande, that suche maner of distinctions is not fur-
thered, but onely for helpe in teachyng, but
the division to bee made in one place, and the
quotiente to bee brought forthe in one prac-
tise, in all divisions generally, whereof the
maner is hereafter practized in example, by
the former dividende, divisor, and quotiente,
in whiche worke is to be seen the former 4.
particular workes all in one.

$$\begin{array}{r}
 x \\
 27|2 \\
 2483|6 \\
 85694|2 \quad |2420. \quad \frac{162}{154} \\
 354444 \\
 3555 \\
 33
 \end{array}$$

The sunderie preceptes and practises of
division before shewed, well noted and un-
derstandinge, thereby any division is to bee
made with facilitie: howbeit, further to note
that when the divisor containeth a greater
nomber of figures, then hath been in any e-
xample before practised. Then every of the
same shall multiply the quotiente, and the
product taken out of the remaine ouer it, and

E.ij. other

Division.

other difficultie is not founde; wherefore I
will practise sunderie examples, wherein the
effecte maie appeare, with order of proesse of
the worke, and so proceede to the next parte,
and for aide to the learner, here is furthered
a fewe lines in verse.

CWhen the diuidende and divisor,
are knownen and how to stande:
Then to the place, make thou repaire,
nexte towarde thy leste hande.
So ofte as the divisor there,
in diuidende is founde:
By one figure the same declare,
in quotient art thou bounde.
The whiche thy quotient newly made,
with figure moste behinde:
Thou shalte it multiply with the reste,
throughout unto the ende.
And euery resulte see thou rebate,
from restes in diuidende:
Duer the figure made multipliar,
so rule maie thee defende.
Then see all figures cancelled bee,
excepte remainers made:
Dof euery one thou wroughtest byon,
whereby true quotient hadde.

The

The firſte wōke finished, againe beginne,
diuiſor remoued a place:
By like order as earliſt was uſed,
and alter not the cace.
Untill laſte figure of diuiſor,
under laſte of diuidende ſeeue:
For there iſ made an ende of all,
ſo truthe doeth ſaie I wéene.
What doeth remaine when wōke iſ doen,
ſet ouer diuiſor fine:
In ſeuered place from all the reſie,
betwæne them bothe a line.

Examples.

$$\begin{array}{r}
x 2(2) \\
2 4 5(6) \\
x 4 9 6 9 \\
2 9 2 9 7(3) \\
5 3 7 4 2 8 | \underline{1557.} \quad \frac{263}{333} \\
3 4 5 5 5 5 \\
3 4 4 4 \\
3 3
\end{array}$$

Division.

Examples.

$$\begin{array}{r}
 3 \\
 \times 2 \\
 \hline
 22(6 \\
 7 6 9(6 \\
 2 3 2 7 8 \\
 3 4 3 8 2(7 \\
 7 8 5 6 4 3 | 284 \overline{)3764} 6 \\
 2 7 6 4 4 4 \\
 2 7 6 6 \\
 \hline
 2 7
 \end{array}$$

$$\begin{array}{r}
 (2 \\
 3(9 \\
 7 0 \\
 3 4 3 \\
 5 8(6 \\
 2 6 7 2 2 \\
 3 4 8 6 8(8 \\
 9 5 6 8 4 2 | 269 \overline{)3346} 3 \\
 3 5 4 6 6 6 \\
 3 5 4 4 \\
 3 5
 \end{array}$$

(4 3
3 7 9 8
4 9 3 3 (1
8 7 9 6 5 (2 | 180
4 8 6 3 3 3
4 8 6 6
4 8



These 4. Examples are set downe, as well to give the learner occasion to examine his skill in the practice of diuision, as also to see th' order of proofe of the worke by some men allowed, whiche is an vncertaine proofe, by castynge awaie the nyne's by order vsed in the other partes, So howbeit that in three of the examples, the effecte of the saied order of proofe agreeeth with truth, the same notwithstanding in one of the fower, the vncertainty of that order of proofe doeth plainly appeare: whiche order followeth.

Firste they caste awaie all nyne's in the divisor, and the reste thei sette at the one side of a crosse, then they caste awaie all the nine's in the quotient, and set the remaine at the other side of the Crosse, and multiply those two remaines together, and adde the resulte to

E. iiii.

the

Diuisiōn.

the remaine of the same diuision (if there bee any) of whiche totall all nyne's caste awaie, the remaine is sette at the vpper ende of the crosse : and lastly all nyne's caste awaie in the diuidende, and the remaine set at the foote of the crosse, and found to agree with the figure in the toppe of the Crosse , then the wo:ke is allowed to be good, or els not. The which appeareth true , in threē of the former examples , but one of the sower is founde contrary , and therefore the Rule not worthie to bee allowed.

But when you desire to proue any Diuisiōn, then multiply your quotient with the figure or figures that was diuisor, and to the result adde the remaine of the diuision if any be founde, and that totall makynge the Diuidend or Somme that was diuided , then the wo:ke is true and else not.

Likewise if you would proue the trueth of any multiplication , diuide the result by the Multiplicator, and the quotient makynge again the Multiplicand, the wo:ke is true or else not. So that the most certaine proufe of multiplication is by diuision, and of diuision by multiplication, of the whiche the effect hereafter may appeare in Reduction , by examples

ples severall for both those partes wherfore
that is aforesaid may seeme sufficient for the
practise of Division.

¶ Of Reduction.

Reduction is no proper parte of
Arithmetick, for howbeit that
the change of one denomination
unto another, or the alteration
of thinges from one title to an
other may well bee termed Reduction. The
same notwithstanding, the effect is perfor-
med by Multiplication or Division, or else
both. Neuerthelesse, for that the learner may
haue experiance howe thinges are reduced
and altered in name and propertie: the sub-
staunce or value remainyng perfectly, great-
ly to his contentation and commoditie. I
therefore thinke convenient to shewe some
examples therof in such place as other haue
furthered it as a parte of Arithmetique,
though as you may perceiue the effect fur-
thered by Multiplication and Division, as
aforesaid.

Reduction.

Reduction of Money by Multiplication.

If you would reduce 5 8 6 $\text{£}.$ into Pence, that is to say, if you would knowe how many Pence are contained in 5 8 6 $\text{£}.$ the same you may performe by 2 maners. The one is by Multiplying 5 8 6. by so many pence as are contained in one pounde which are 240. The other is by bringyng 5 8 6 $\text{£}.$ into shillinges, by multiplying the same by 20 which are the nomber of shillinges in one pounde, and so brought into shillinges, the same to be multiplied by the pece of one shillyng, which are 12. and so at 2 woorkes the saied 5 8 6 $\text{£}.$ brought into pence of euery the whiche orders the effecte is hereafter practized by example.

Example practized by the
first Order.

£.	d.
5 8 6	
2 4 0	d.
<hr/>	
2 3 4 4 0	
1 1 7 2	
<hr/>	
1 4 0 6 4 0	d.

Example

*Example practized by the
seconde Order.*

P <i>t.</i>
5 8 6
2 0 ̄ -----
1 1 7 2 0 ̄ 1 2 ̄ -----
2 3 4 4 0
1 1 7 2 0 -----
1 4 0 6 4 0 ̄ -----

Thus appeareth plainly by 2 maner of practizes of Multiplication, that in 5 8 6 P*t.* are contained 1 4 0 6 4 0 ̄ d. and so the denomination chaunged from poundes to pence, and therefore saide to be reduced.

If you would reduce 1 4 0 6 4 0 pence into pounds, that is to know how many poundes are cbtained in the said nōber of pence. Then you shall diuide the said pence by so many as maketh one Pounde, or else firste bring the same into shillinges, diuidyng by 12 whiche are the number of pence in one shilling, and

to

Reduction.

to bryng the said shillynges into poundes by
20 whiche are the shillinges of one pound,
and so þ said pence by 2 maners are broughte
into poundes, whereof the effect hereafter is
practised by example.

Example practized by the first maner.

2	X	2	
4	4	4	0 d.
X	4	0	6
4	0	6	4
4	0	6	4
2	2		

Example practized by the seconde Oraer.

2	X	X	
2	8	2	d.
X	4	0	6
0	6	4	0
2	2	2	2
2	2	2	2

Thus appeareth also that in 140640d.
are contained 586li. by 2 maner of practi-
zes of Division, by the whiche may appear
the

not onely the effecte of reducing thinges of one denomination to an other . But also the perfecte order of propoſe of Multiplication, and diuision the one by the other as aforesaid.

A further difficultie is founde , when sondrie denominations are to bee reduced into one, as if occasion required to bring 7 4 9 li. 15 ſ. 5 d. all into mytes , for then the moſte conuenient order is to multiply the pounds with the ſhillinges of 1 pound which is 20. and to the result is to be added the 15 ſ. ap- pearyng alone , and then the totall of ſhillinges to bee multiplied with 12 d. in one ſhil- ling contained and to the product is to be ad- ded the 5 pence ſtandynge alone , and that to- tal multiplied by 24 mytes in 1 peny ther- by is brought forth the whole nomber of mi- tes in the aforesaid ſomme contained. Wher- of the effect hereafter by practise appearyng.

Example

Reduction.

Example.

Pi.	ſ. d.
749.	15 · 5
20 ſ.	
<hr/>	
14980	ſ.
15	ſ.
<hr/>	
14995	ſ.
12	d.
<hr/>	
29990	
149955	
179945	d.
24	Mytes.
<hr/>	
719780	
359890	
<hr/>	
4318680	Mytes.

Here appeareth that in 749 Pi. 15 ſ. 5 d. is contained 4318680 mytes, the several denominations reduced into one by multiplication.

Likewise to bring 4318680 Mytes

division

into poundes that is to bee performed by di-
vision as in example practized the effect may
appeare.

$$\begin{array}{r}
 22xx \\
 \times 5542 \\
 \hline
 29322x \\
 4318680 | \underline{179945} \\
 2444444 \\
 \hline
 22222 \\
 \times 12 \\
 \hline
 222x \\
 5xx6 \text{ d.} \quad x(1 \text{ s. } \text{ £}) \\
 \hline
 \underline{179945} | \underline{14995} | \underline{1499}(\underline{5} | 749 \\
 22222 \quad 2220 \\
 \hline
 333x
 \end{array}$$

Here you may see that 4318680. my-
tes diuided by the mytes of one peny, whiche
is 24. yeldeth in quotient 179945 pence,
the whiche also diuided by pence of one shil-
lyng, whiche is 12. yeldeh in the Quotient
14995 shillinges and 5 pence remainyng.
The whiche shillinges also diuided by 20.
contained in one Pound yeldeh in quotient
749 £. and 15 s. remainyng. The whiche
749 £. 15 s. 5 d. is the originall of the for-
mer

Reduction.

in examples of Reduction, firsste reducing the same from great denominatiō and small termes, into a small denomination and great termes by practice of multiplication. And contrariwise reducynge the same again, from small denomination and greate termes into the firsste kynde, of greate denomination and small termes, by diuision wherein appeareth how to understand of Reductiō, and the same to be performed by Multiplication or Diui-
sion as aforesaide, whereof to giue further preceptes needeth not, howbeit to shewe the learner wherein partly the effect to applie, here followeth sondrie examples of Reducti-
ons of waights, measures moneys, by Ex-
chunge for sondry countries.

*¶ Reduction of
Waights.*

In 5 2. 3. 124 lb. What the whole in pounde waights.

C. quart.

C.	qn.	li.	oz.
		52.	3.
		3.	24.
		4	
		<hr/>	
		308	
		3	
		<hr/>	
		211.	quart.
		28	
		<hr/>	
		1688.	li.
		422	
		24	
		<hr/>	
		593	2.li.

To reduce weightes from one denomination to an other, requireth an understanding of the severall denominations, belonging to the kinde of weightes, procuryng a reduction: wherefore note, that the hundred weight at the common beame of London, containeth 112.li. the halfe hundred 56.li. the quarterne 28.li. The pounde weight containeth 16.onzes, and are called weightes Habardepoise. By whiche kinde of weightes, the former example furthered, note that 52.li. is multiplied by 4, quarters, and yeldeþeth

F.j. 208.

Reduction.

208.quart. to the whiche is added 3.quart
parcell of the example, the totall whereof
multiplied by 28.lib. contained in one quart.
yelveth 1688.lib. to the whiche is added 24.
lib. parcell of the example: the totall whereof
beyng 5932. pounde, is the effecte sought
for in the example, whiche is the number of
pounde weightes, contained in 52. hundred
3.quart. 24. pounde wrought by multiplicati-
tion. The whiche to transpose againe into
the firste kinde by diuision: hereafter the ef-
fecte appereth by practise.

Example.

In 5932.pounde, what hundred weightes
habardipoise.

(2)

3 lib. quar.

235(4) qu.(3) £.

5932 212 | 222 | 52.

2888

22 44

Reduction

Reduction of Measures.

In 56.8. yarde, what Inchies are contained?

Yardes.

$$\begin{array}{r}
 568 \\
 -36 \\
 \hline
 3408 \\
 -36 \\
 \hline
 1704 \\
 -36 \\
 \hline
 20448 \text{ Inchies.}
 \end{array}$$

In 20448. Inchies, what yarde are contained:

224

56.8

20448. Inchies.

3666 56.8.

33

yardes.

Thus you maie see that 56.8. firste multiplied by 36. Inchies, conteined in one yard produceth 20448. Inchies, the whiche againe diuided by 36. yelveth in the quotient 56.8. yarde, agreeing with the former de-

F.i.j. claracion.

Reduction.

claration.

Herc it is necessary to note, that when occasion requireth reduction of one denomination into an other , when neither of the same are of greatest, nor smallest denominatio, belonging to the qualitie of that thyng, which requireth the reduction , then the denomination to be reduced, requireth multiplication thereby , to bee brought into the smallest denomination needfull, that by division of the same , it maie bee brought into the other denomination, whiche the occasion searcheth: for any thyng in small denomination, maie bee turned into sonderie sortes of greater, as sonderie occasions maie require, as by severall examples hereafter the effecte maye appeare.

In 364. Nobles, of 6. s. 8.d. the pence,
what Trounes of 5.s.peece.

These forenamed Nobles , beyng multiplied by 80. d. conteined in one Noble, produceth the whole number of pence in those Nobles contained, the whiche pence diuided by 60. contained in one Troune , yeldeth the quotient so many Trounes, as are contained in the saied Nobles , the whiche beynge the effecte

effeſt of the former note, hereafter appereſt
in example practized.

Nobles.

368.

80

29440. d.

ſixty d. and 40. Trounes.

29440. | 490.6660

In, 490. Trounes, and 40. d. remainyng
what Nobles?

Trounes.

490. | 4. d.6029400.40.29440. d.

Nobles.

29440. | 368.8883

ſ. ljs.

By

Reduction.

By the same maner, when Englishe monney is to be reduced into frenche Crounes, Spanishe Duckets, Flemishe Guildzens, or Dolars, the somme of money being brought into pence, then it is denomination apte to bee diuided by the nouumber of pence, beyng price by exchange of the saied Croune, Ducket, Guildzen, or Doller, the effecte likewise hereafter appearyng by example.

To make ouer by Exchange 100. lib.
Starlyng for Fraunce, at 4.s.9.d. euery croune, for Spaine at 5.s.10.d. euery Ducket; For Flaunders at 3.s.11.d. the Guildzen: or other place at 4.s.3.d. the Doller.

Firste, reduce the saied 100.l. into pence whiche maketh 24000. the whiche diuided by 57. d. the price of the Croune for Fraunce, yeldeith in the quotiente so many Crounes as 100. li. maketh at that price, or for Spaine diuided by 75.d. the price of a Duckett, yeldeith in the quotiente so many Duckettes as 100.li. maketh at that price, or for Flaunders diuided by 47. yeldeith in the quotiente so many Guildzens as 100.l. maketh, and lastlie diuided by 51. d. yeldeith in quotiente so many Dolars as 100. lib. maketh, whereof the effecte hereafter by examples

examples appeareth.

	x
lib.	26 3.d. crounes
The pence of 100	24000 42 1 $\frac{1}{7}$
The price of the	5777
Frenche croune.	55
	32 (6 d.)
Pence of 100 fl.	2400(0) duc.
price of the Spanish duket	777 0 342 $\frac{5}{7}$
	53 (3)
Pence of 100	2400(0) Guildres
price of the Guildren	477 7 510 $\frac{3}{7}$
	44
Pence of 100	2400(0) on Dolars
price of the Dolar	512 2 470 $\frac{5}{7}$
	55
By these examples appeareth that 100 fl. made into France by exchange at 4.s.9.d. fl.iiiij. the	

Reduction.

the Crowne maketh 421 $\frac{3}{7}$ Crownes.

Also 100 Pi. made into Spaine by Exchaunge at 5 s. 10 d. the Ducket, maketh 342 Duckets $\frac{5}{7}$

Likewise made into Flaunders at 3 s.
11 the Guildren, maketh 510 Guildres $\frac{5}{7}$

And at 4 s. 3 d. the Dollar maketh 470.
Dollars $\frac{5}{7}$.

Here note that the Exchaunge for Flaunders is for the moste parte furthered by the pounde, aswell Flemishe as Starlyng, whereof some examples followe.

To make ouer to Andwarpe 100 Pi. Starlyng at 24 s. 8 d. Flemish the Pounde starlyng, reduce the said 100 Pi. into Flemishe money by Multiplyng the same by 296 d. whiche is the price Flemishe of the Pounde starlyng, and the product wil be so many Flemishe Pence as the said 100 Pi. Starlyng is worth at the price, the which Pence diuided in order as afore taught, for English money yelveth in quotient so many Flemishe poundes as the said 100 Pi. Starlyng amounteth

to

to by Exchaunge, wherof the effect by exchaunge
ple practized hereafter appeareth.

100 Starlyng. 296 d. Flemishe.

100	Starlyng.	296 d. Flemishe.
600		001
900		0.1
200		0004
29600 pence.		005

12		
58 (8 d.	Li.	
29600	123.6 s. 8 d. Flem.	323
24440	.8.01.08	00048
22		8828

Thus appeareth that 100 l. Starlyng reduced into Flemishe Pence by multiplying the same by the price of the li. maketh 123 li. 6 s. 8 d. Flemishe. But when Flemishe Money is to be made from thence into England, then you shall reduce the same into pence, and divide the total sum by

Reduction.

by the price of the Englishe Pounde, and so finde in the Quotient the Englishe Money desired as in practice may appeare by example by 100 Pi. Flemmish at 4 s. 10 d. Star-
lyng.

Pi.	.000 .000 .000
100	Flemmish.
240	000
<hr/>	<hr/>
4000	000
200	000
<hr/>	<hr/>
24000	000
<hr/>	<hr/>
886	Pi. s. d.
24000 80. 10. 8.	Starling
2988	

Here appeareth that 100 Pi. Flemmish multiplied by 240 d. contained in one pound produceth 24000 d. The which diuided by 298 d. the price of the Pi. starling yeldeth in Quotient 8 Pi. 10. 8 d. and a parte of a penny, and is the value of a 100 Pi. Flemmish at

at 24 s. 10 d. the Pi. starlyng.

Likewise Waighes of what denomination soever beeynge reduced into the smallest denomination nedefull, may be chāunged into any other Denomination required, as by examples may appeare.

If you would reduce Quintalles, containing 100 li. weight simple or subtil into hundredth waighes containing 112. lib. or to the contrary the C. at the Beame in London into Quintalles. Then bryng the denomination to be reduced into Pounde waighes by multiplication, and heynge in pounde waighes they are apte to bee brought into the other denomination by Division.

Example.

In 54. Quintalles. What C. waighes.

100	x(2)		
5400	94	C. Pi.	
	x 2(4) 48. 24		
	5400		
	4422		
	xx		

Proofe.

Reduction.

¶ Proofe.

In 48. C. 24. lib. what Quintals.

$$\begin{array}{r} 112 \\ \hline 96 \\ 48 \\ \hline 4824 \\ \hline 5400 \end{array}$$

5400 | 54 Quintals.

1000

10

Likewise for measures, to tourne yarde into elles, or elles into yarde: either of the same brought into quarters of a yarde by multiplication, the other maie bee brought to the denomination required with facilitie.

¶ Example.

In 568 yarde, what elles.

$$\begin{array}{r} 4 \\ \hline 2272. \text{quarters.} \\ \hline \end{array}$$

2(2

Reduction.

39

2(2. miller) Elleg.

2 2 7 2 1454 $\frac{3}{4}$

5 5 5

3 6 8 Elles, what yardeſ?

5

2 8 4 0

2 8 4 0 1710, yardeſ.

4 4 4

Also Inchē may be brought into ſteet, by diuining 1 2 . into yardeſ, by 3 6 . into elles, by 4 5 , and ſo of all other thynges.

Thus muche maie ſeme ſufficient, to giue underſtāding for the effecte of reduction, the whiche as aforesaid, not to bee accounted a parte proper of Arithmetique, but rather an application of multiplication, and diuision to ſondrie thynges, whereof the practiſe proſtitable to bee knownen unto learners, wherein occaſions growyng to infinite effecte.

Progression.

Progreſſion

Progression.



Regression Arithmeticall is a shorūt and b̄eēfe maner, addyng sonderie figures or noumbers sett doun, euery one (after the firſte) increaſyng by equalle quantitie, as 1.2.3.4.5.6.7.8.9. there is encrēase by an uncie: also 2.4.6.8.10.12. the encrēase is by 2. Againe 3.6.9.12.15. 18. &c. euery noumber of the Progression is augmented by 3. more then an other. The whiche progressions, and all other like, are to bee ſommed by rule of Progression with muſche more facilitie then by Addition, as by example the eſſecte maie appeare.

There is to bee noted, that if the tynies of the Progression bee odde, then the firſte and laſte Noumbers added together, and the halfe of that totall multiplied by the Noumber of tynies of the progression, the product thereof will be the iuft ſomme of the ſaid progression, as by example plainly may appeare.

Example.

Progression.

49

Example.

1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
<hr/>		
makes — 45		<hr/>
		45

Here appeareth the tymes of the progression to bee 9. and the firste nomber 1. Added with the last which is 9. maketh 10. the halfe whereof beyng 5. multiplie with the tymes of the progression, whch is 9. producech 45 the full somme of the whole progression as by Addicion is proved, and this is the perfekte rule of Progression when the tymes be odde.

Howbeit, when the tymes of Progression be euen, then adde the first and laste together and multiplie that totall with halfe the nomber of times of the Progression, and the product will be the iust somme of the Progression, as may appearre likewise by example.

Example.

Progression.

Example.

I		I
2		2
3		3
4		4
5		5
6		6
7		7
8		8
24		36

Here the tymes of the progression beyng 8. whereof the first and laste makynge 9. and multiplied by 4. the halfe of the times , produceth the somme desired , whiche is 36. as by Addition is shewed.

It may seeme necessary to note one Generall Rule for both, the former whiche is to multiply the one hole , with the halfe of the other. As the first and laste beyng odde, multiply the same by halfe the tymes of the Progression whiche then is euer euuen, and if the first and laste be euuen, then with halfe thereof multiply the tymes of the Progression bee- yng euuen or odde, and so finde the iust somme desired.

Some

Some may by reading vnderstande these former Rules, and yet want experiance how to applie theim, wherefore not amisse to giue some example suche to contente. Wherefore somewhat thereof followeth.

A Lordship is offered to sale, to be paied the first day of. 45.next folowing 20.shillinges:the seconde 40.shillynges:the third 60.shillynges, and so euery daie 20.shillynges more then an acher,till 45.might bee ended, the question is,what the somme will amount vnto.

Accordyng to the firste of the former rules,adde the firste and laste Numbers of the Progression together,as 1.pounde with 45 pounde, and that maketh 46.the halfe wherof 23.multiplied by the tymes of the Progression, 45.produceth 1035.pounde, the somme required in the question, as by addition mairc appeare.

G Example.

G.j.

I.

Progression.

$ \begin{array}{r} 1 \cdot 45 \\ \quad \quad 1 \\ \hline 46 \end{array} $ $ \begin{array}{r} 23 \\ 45 \\ \hline 115 \end{array} $ $ \begin{array}{r} 92 \\ \hline 1035 \end{array} $	$ \begin{array}{r} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ \hline 10 \end{array} $	$ \begin{array}{r} 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ \hline 20 \end{array} $
		$ \begin{array}{r} 55 \\ \hline 155 \end{array} $

$ \begin{array}{r} 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 29 \\ 30 \\ \hline 255 \end{array} $	$ \begin{array}{r} 31 \\ 32 \\ 33 \\ 34 \\ 35 \\ 36 \\ 37 \\ 38 \\ 39 \\ 40 \\ \hline 355 \end{array} $	$ \begin{array}{r} 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ \hline 215 \end{array} $
		$ \begin{array}{r} 355 \\ \hline 1035 \end{array} $

These examples, as well teach the practice of Progression, as also sheweth the difference of facilitie of the same, from the tedious

ons. vse of Figures in Addition, the effecte
whereof well noted make suffice, for progres-
sion Arithmeticall.

A Lapidarie solde, a Tuell to bee paid the
first weeke of 52. in one yeare 1 Crowne the
seconde, 2 Crownes, and so euery paiment
one Crowne more then an other. 52. tymes.
It is demanded what number of Crownes
the whole progression amounteth.

Accordyng to the second of the former rul-
les adde 1 Crowne the firste noumber with
52. the last, and that maketh 53. the whiche
being multiplied with. 26. halfe the times of
the Progression produceth. 1378. Crownes
the iust somme of the Progression, as by
Addition will appeare.

Example.

Q. is.

I

Progresſion.

I	52	I	II	21	31	41	. 51
	I	2	12	22	32	42	52
	—	3	13	23	33	43	103
53	4	14	24	34	44	455	
26	5	15	25	35	45	355	
318	6	16	26	36	46	255	
106	7	17	27	37	47	155	
	8	18	28	38	48		
1378	9	19	29	39	49	55	
	10	20	30	40	50	1378	
	—	—	—	—	—	—	
	55.	155.	255.	355.	455		

A Marchaunt sold 100. yardeſ of cloth to bee paide in 40 weekeſ, to paye the firſte weeke 2 ſ. the ſeconde 4 ſ. the thirde 6 ſ. ſo euerie paiment 2 ſ. more then an other, till 40 weekeſ expired. It is demaunded what money the ſaid 100. yardeſ of cloth doth amount unto.

Accordyng to the former generall Rule adde 2 ſ. the firſt noumber of the progresſion to 40 the laſte of the ſame, and that maketh 42. the whiche multiplied by 20. the halfe of the tymeſ of the Progresſion yeldeth 840. ſhillinges.

Or otherwise, multiply the whole noumber

ber of times of the Progression with 2 i. the halfe of the Addition of firste and last noumbers of the Progression, and the result wilbe also 840 shillinges as by example.

Examples.

$$\begin{array}{r|l}
 2. & 40. \\
 & 2. \\
 \hline
 & 42 \\
 & 20 \\
 \hline
 & 840
 \end{array}
 \qquad
 \begin{array}{r|l}
 2. & 40 \\
 & 21 \\
 \hline
 & 840
 \end{array}$$

There is an other kinde of Progression, and that is Geometricall, wherein euerie cyme containeth the nexte before it, so often as the seconde containeth the firste, as

1. 2. 4. 8. 16. 32. 64.

3. 9. 27. 81. 243. 729.

4. 16. 64. 256. 1024.

Here you maie perceiue 64. in the firste Progression, containeth 32. so often as 2.

G. tis. contain-

Progreſſion.

containeth 1. Also in the ſeconde 7 1 9. con-
taineth 2 4 3. ſo often as 9. containeth 3.
Likewife in the thirde 1024. containeth
2 56. ſo often as 16. containeth 4.

The whiche Progreſſions or ſuche like,
to ſhewe the whole, you ſhall multiply the
laſte number of the Progreſſion, by the firſte
common multiplicator, and from the reſult
you ſhall diuide by one leſſe, then was the
multipliſer, and ſo haue the quotient the iuſte
totall of that Progreſſion, as by examples
the effecte maie appeare.

A Testatour giueth in Legacie to eight
of his frendes, a certayne ſomme of money:
To the firſte 4. pounde, to the ſeconde 4. ty-
mes as muche as the firſte, whiche is 16.
pounde: To the thirde 4. tymes as muche as
the ſeconde, and ſo euery of the other 4. ty-
mes as muche as he before hym. The queſti-
on is, what amounted the whole legacie.

As before is ſhewed, ſette doun all the 8.
termes: Thus.

4. 16. 64. 256. 1024.

4096. 16384. 65536.

Then

Then multiply the laste somme by the
firste, and the producte is . 2 6 2 1 4 4 . from
whiche rebate the first 4. so resteth 2 6 4 1 4 0
to be diuided by 3. whiche is, I. lesse thy the
multiplier and the quotiente , is the somme
of the whole Legacie, whiche is 8 7 3 8 0 . li.
as by example, proued by addition.

$\begin{array}{r} 65536 \\ \times 4 \\ \hline 262144 \end{array}$	$\begin{array}{r} 242 \\ \times 40 \\ \hline 262140 \end{array}$	li. $\underline{87380}$
$\begin{array}{r} 4 \\ \hline 262140 \end{array}$	$\begin{array}{r} 33333 \\ \hline \end{array}$	

Thus muche to vnder-
stande is sufficient for the
sommynge of any progres-
sion Geometricall, where
the firste Number is the
roote in any worke what-
soever the roote be.

16
64
256
1096
4096
16384
65536
87380



Numeration.

The seconde parte containyng the
woorke of Fractions, or broken numbers,
and firste of Numeration.



Whole numbers compounde
of vnitie maie bee augmented
and encreased to infinite effect:
so an vnitie maie bee diuided
into sondrie and infinite dimi-
nute partes, whiche partes in name and na-
ture are agreeable. For a fraction is a parte
of one vnitie, and not of many: for howbeeit
that whole Numbers maie bee diuided into
partes, to severall effectes, the same notwithstanding
standyng, such diuided partes are no proper
fractiones, but impropere shewe the parts of
whole nombers, and not of an vnitie, as 4 o.
pounde to bee parted amongst three menne:
the firste to haue $\frac{1}{4}$, whiche is one fowerth
parte: the seconde $\frac{2}{4}$, whiche is twoo fift par-
tes: and the third $\frac{7}{20}$, whiche is seuen twentie
partes. The saied Partes maie bee shewed
in whole noumbers, not needyng the use of
fractions for the same. For the $\frac{1}{4}$ is 1 o. lib.
the $\frac{2}{4}$ is 1 6. pounde, and the $\frac{7}{20}$ is 1 4. pounde,
whiche together maketh 4 o. pounde, and all
suche

suche numbers expressed in maner like fractions, are not proper fractions, but improperly borowyng the propertie of fracionys, whiche as aforesaid, are partes of one unitie onely, and not aboue.

Here is to bee noted, that a fraction is expressed by twoo figures, set the one ouer the other, with a line betwene, thus $\frac{1}{3}$, whiche signifieth twoo thirde partes of an unitie, and that vnder the line, is called the denominatour, because it doeth euer represent the partes, wherein the unitie is diuided: and that aboue the line is called the numerator, because it sheweth the number of partes, by occasion required, not needing the whole unitie. As when a manne hath right to $\frac{2}{3}$ partes of a pounde in money, whiche is twoo Nobles, then 2. ouer the line, sheweth the partes of his right, and 3. vnder the line, sheweth wherein the unitie is diuided, and representeth one pounde of money, diuided into three partes.

Here note, that eury fraction abstract or free from denomination, maie bee applied and made contracte to any denomination, by occasion required, and more easie for the learner to understande, what the nature and ha-

Numeration

Iewe of a fraction is; when the Carracter of
denomination is ioyned with it, then when
it is without the same, as by example the ef-
fecte maie appeare.

$$\frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \frac{5}{6} + \frac{7}{8} + \frac{9}{10} + \frac{17}{20} + \frac{25}{32} + \frac{161}{240}$$

Every of the denominatours of the I O.
former fractions, doeth represente an unitie
diuided into so many partes, as the figure or
figures of the same doeth demonstrate: how-
beeit, not to bee knowen of what thyng, for
want of a Carracter, to signifie the denomi-
nation. Likewise every Numeratour, is so
muche lesse then an unitie, as the difference
appeareth, betwene it and the denominatour
thereof, and maie bee applied to sondrie thyng-
es, ioynyng a Carracter for the same, bee it
of weightes, Measures, Moneyes, or other
thynges whatsoever, as hereafter appeareth
by Carracters for Monies, seemyng moste
apte for the purpose.

d. d. s. s. li. li. li. li. li.

$$\frac{1}{2} \quad \frac{2}{3} \quad \frac{3}{4} \quad \frac{4}{5} \quad \frac{5}{6} \quad \frac{7}{8} \quad \frac{6}{10} \quad \frac{17}{20} \quad \frac{25}{32} \quad \frac{161}{240}$$

The firſte and ſeconde of theſe I O. frac-
tions, haſt the letter d, for carracter, signiſi-
yng

yng of a peny, and halfe a penie, and 2. thirde partes of a peny. The third and fowerth haue the letter s. for character, signifying to bee of a shillyng: as 3. fowerth partes, and fower fifte partes of a shillyng. All the reste haue the letter l. for character, signifying euery of the same to bee a fraction, or a parte of a pound of Money, as 5. sixt partes of a pound 7. eight partes of a pounde, and so the reste 9. tenth, 17. twenteth, 25. thirtie twoo, 162 twoo hundreth and fourtie partes of a pounde and accordaning to the former saying, so much as any of the numeratour (whiche is aboue the line) is lesser then the Denominatour of the same: so muche it wanteth of the valewe of the unitie by the Denominatour, and character represented, be it of a peny, a shillyng, or a pounde: and so to understand of all other fractions, of what denomination so euer, and for the learners better understandyng hereafter the same fractions are applied to other denominations, signified by wordes, for what of vsuall caracters, as for moneys is fonde.

$\frac{1}{2}$ Inch', $\frac{3}{4}$ Foote, $\frac{3}{4}$ Yarde, $\frac{4}{5}$ Elle, $\frac{5}{6}$ Dunce or vnz, $\frac{2}{3}$ lib or pounde weight, $\frac{9}{10}$ C. or hundreth weight, $\frac{17}{20}$ Hower, $\frac{25}{33}$ Moneth, $\frac{162}{240}$ Vere. &c. Thus maie you see a fraction to bee

Numeration

bee a parte of an huitie , whereof knownen by Carracter , or woordē of denomination , and not hauyng denomination , maie bee applied to any thyng , by occasion required , and thus muche maie seeme sufficiēte to giue vnderstanding how to expreſſe a fraction , whiche is a parte of Numeration : howbeit now remaineth to shewe how to finde the valewe of a fraction , whereof the effecte hereafter followeth by examples in the former fractions , applied to ſeverall denominations .

$\frac{1}{2}$ Bushell ſignifieth a Bushell to bee diuided in twoo partes , and the halfe thereof the fraction repreſenteth : whereof to finde the valewe to bee expreſſed in common and knownen partes , you ſhal conſider what dimiuite partes the Bushell containeth , and that is 4. Peckes . Then multiplie the numerator 1 . by 4. Peckes in the Bushell , and the produete diuided by the Denominator 2 . the quotient will ſhewe 2 . Peckes to bee contained in the fraction , and is the valewe of halfe a Bushell desired to bee knowne , and this take for a generall rule , to bryng a fraction into common and knowne partes , the effect more at large appearyng in ſondrie examples following .

$\frac{2}{3}$ Foote signifieth twoo thirde parts of a foote, whereof to finde the valew in common knownen partes, consider what Diminutive partes a foote containth, and that is 12 Inches, by the whiche multiply the Numerator 2. maketh 22 Inches, the which diuided by the Denominator 3. yeldeth inquotient 8 Inches for $\frac{2}{3}$ partes of a foote, &c.

Likewise $\frac{3}{4}$ lib. is 3 quarteas of a Pounde weight, and to knowe the value thereof, you must consider what knownen partes the same containeth, the whiche beeing haberdipoy's waight is 16 ounzes. Wherby multiply the Numerator 3, and the product is 48 ounzes, the whiche diuided by the Denominator 4. the quotient sheweth 12. ounzes to bee $\frac{3}{4}$ of the lib. haberdi poys.

Howbeit if the Pounde waight bee Troy weight wherby Gold Siluer and Precious stones are waied, then 12 ounzes maketh the lib. the whiche multiplied by the Numerator 3. produceth 36. ounze, the whiche diuided by the Denominator 4. yeldeth in Quotient 9. ounzes for $\frac{3}{4}$ of the lib. Troye.

Also $\frac{2}{3}$ ell representeth foure fist partes of an ell, the whiche to bring into common and knowen

Numeration

knowen partes, consider what knowen partes an ell containeth, and that is founde in 3 sondrie sortes. Firsste it containeth 4. q. propter to the same. Also 5 q. of the yarde, and thirldly 45 Inches. To haue it in parts propter to it, multiplie the Numerator 4 by the quarters in the ell, whiche is also 4, maketh 16. and that diuided by the Denominator 5. yeldeth 3 q. of the ell, and $\frac{1}{5}$ of one of the same q. To haue it in quarters of the yarde, multiplie the Numerator by 5. quarters of a yard in an ell contained, the product wilbe 20, and the same diuided by 5 the Denominator, sheweth 4.q. of a yard in the fraction contained.

Lastly to bring it into Inches, multiplie the Numerator 4 by 45 Inch in the ell contained, the Product wilbe 180. The which diuided by the Denominator 5. yeldeth in quotient 36 Inches for $\frac{1}{5}$ of an ell.

To bryng $\frac{1}{5}$ s. into apte knowen partes, multiply the Numerator 5 by 12. d. in a shilling contained, maketh 60. and the same diuided by 6. the denominator, yeldeth in quotient 10. d. for $\frac{1}{6}$ of a shilling. &c.

To bryng $\frac{1}{6}$ d. into knowen partes, multiplie the Numerator 7. by the Mythes of a Penny, whiche are 24, and the Product wil bee

be 168, and the same diuided by the denominator. 8. the quotient will shew 21. Myres to be the $\frac{2}{3}$ partes of a penny.

To bring $\frac{9}{10}$ Crowne into knownen partes, multiply the numerator 9. by 15 groates, or 60. Pence in a Crowne contained, and you shall haue produced 135. for groates, and 540 for Pence, the whiche products diuided by the denominator 10. yeldeth in quotient 13. groates and a halfe, and 54 d. euery of whiche is 4. s. 6. d. for $\frac{9}{10}$ of a Crowne.

To bring $\frac{17}{20}$ Noble into knownen partes, multiply the numerator 17. by 20. greateſ or 80. pence in a Noble contained, and the Product will be 340. for the groates, and 1360. for pence, the whiche diuided by the Denominator 20. yeldeth in Quotient 17 groates and 68. d. euery of whiche is 5. s. 8. d. for $\frac{17}{20}$ of a noble.

To bring $\frac{25}{32}$. into knowē partes, multiply the numerator 25. by the shillyngs in a pound whiche is 20. and the Product wilbe 500. the which diuided by the Denominator 32. yeldeth in quotient 15. s. and $\frac{20}{32}$ partes of a shillyng, and to knowe the value of that later fraction multiply the numerator 20. by the pence.

Progression.

pence in a shilling, which is 12. and the product wilbe 240. the whiche diuided by 32. sheweth in quotient 7. d. ob. and so haue you 15. s. 7. d. ob. for the $\frac{25}{32}$ partes of a pound.

Lastly to bryng $\frac{162}{40}$ li. into knownen parts, multiply the Numerator 162. by 20. s. in a Pound, and the Product will be 3240. the whiche diuided by the Denominator 240. yeldeth in quotient 13. s. 6. d. for $\frac{162}{40}$ li. and so of all other.

Progression of Fractions.

Progession of Fractions is in 2 sortes, the one of property contrary to y other. for the first which is $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}$. and so infinitely, the greater that the denominator is, so much the smaler is the value of the fraction, for $\frac{1}{2}$ li. whiche is 3. s. 4. d. is of smaller value then $\frac{1}{3}$ li. whiche is 4. s. also $\frac{1}{4}$ li. is 5. s. and of smaller value then $\frac{1}{5}$ li. whiche is 6. s. 8. d. and so $\frac{1}{6}$ s. 8. d. is smaller thā $\frac{1}{5}$ li. which is 10. s.

But to the contrary in the seconde sort of progression, whiche is $\frac{2}{1}, \frac{3}{2}, \frac{4}{3}, \frac{5}{4}, \frac{6}{5}$. &c. the greater that the Denominator is, the more is the value of the fraction. For $\frac{2}{1}$ li. beeyng 16. s. 8. d. is more then $\frac{3}{2}$ li. whiche 16. s. Also $\frac{3}{2}$ li. whiche

whiche is 1 5. s. is greater then $\frac{2}{3}$ li. whiche is 1 3. s. 4. d. and so of all other like vnderstande.

And here note in the first progression, the greatest that the Denominator is, so muche the more is the unity decreased, whiche may bee to infinite effect and euer to be somewhat, and to the contrary in the seconde progression, the greater that the denominator is, the nearer to the whole unitye the value of the fraction doth approche, how be it can never attaine to make the unity.

Reduction of Fractions.



Eduction of Fractions containing the maner how to byng 2 or more fractions into one, either such as be of one Denomination, as other whiche are of contrary denominations, the effect whereof more easie to understand by a fewe examples then in many wordes.

To reduce $\frac{1}{3}$ li. $\frac{3}{4}$ li. into one, that is to make one Fraction to containe the value of them bothe. You shall by a generall Rule multiply the 2 denominators, the one by the o-

ther
D.s.

Reduction

ther saiyng, 3 tymes 4 is is 1 2. to bee sette
doun twice for 2. newe denominatoꝝ thus.
12. 12. then multiplie the numerator of the
firſte fraction by the Denominator of the ſe-
conde, that is one by 4. maketh 4 for a newe
Numeratoꝝ to ſtande ouer the common and
newe denominator thus $\frac{4}{12}$ li. Also multiplie
the numerator of the ſeconde fraction by the
denominator of the firſt which is 3. by 3 is 9
to ſet ouer 12 thus $\frac{9}{12}$ li. & ſo haue you 2 new
fractions of one Denomination, containing
the value of 2 firſt. For $\frac{1}{3}$ li. and $\frac{9}{12}$ li. is of one
value which is 6.s.8.d. and $\frac{3}{4}$ li. and $\frac{9}{12}$ li. is
and of one value, which is 1 5 s. & the 2 firſte
beyng of contrary Denominations reduced
into the 2 later beyng of one denomination.
And to make one fraction of them both, adde
together the 2 Numeratoꝝ 4 and 9 is 1 3.
to ſet ouer 12 thus $\frac{13}{12}$. and ſo you haue 1 fra-
ction $\frac{13}{12}$ li. containyng the iuste value of $\frac{1}{3}$ li.
and $\frac{3}{4}$ li.

Note that when the Numeratoꝝ of any
fraction is greater then the Denominator,
the ſame is a fraction improper, and made in
ſuche forme by naede in worke or otherwife,
and then by Rule generall diuide the nume-
rator by the Denominator, and the quotient
will

will shewe the vnitie or unities in the sayde fraction, and the remaine if there be any will be a proper fraction. Wherfore to ende this reduction, diuide the Numerator 13. by the Denominator 12. and the quotient will bee 1 and $\frac{1}{12}$ li. whiche is 2 I s. 8 d. the iust value of the 2 firste fractions $\frac{1}{3}$ li. whiche is 6 s. 8 d. and $\frac{1}{4}$ li. whiche is 1 5 s. and together maketh 2 I s. 8 d. as the Reduction hath brought forthe.

Sometimes occasion may require reduction of 3. 4. or more severall Fractions of sondry Denominations to bee brought into one denomination, and to make one fraction of many, and then you shall multiply the first denominator by the seconde, and that product by the thirde and the seconde product, by the fourth &c. And so many Fractions as there are to be reduced, so many newe Denominators shal you set downe in former order. And to finde numeratores to euery of the same you shall multiply euery numerator into all the denominatores of the other fractions not belonging to the numerator multiplier, and so finde to euery newe denominator a newe numerator, as example will declare.

To reduce $\frac{1}{2}$ li. $\frac{2}{3}$ li. $\frac{3}{4}$ li. and $\frac{4}{5}$ li. into one
H. iij. denomina-

Reduction

denomination, and so to one Fraction firste
multiplie the denominatoꝝ, one into ano-
thers product, as 2 by 3. is 6. and that by 4.
is 2 4. the whiche by 5. is 2 0. for common
denominator to be set downe 4 tymes. Then
by the numerator of the firste, whiche is 1.
multiplie the Denominatoꝝ of the other,
whiche is 3. 4. and 5. the product is 60. to
set ouer the common Denominator 1 2 0.
thus $\frac{60}{120}$ li. and is in value equall with the
first fraction $\frac{1}{2}$ li.

Then by the Numerator of the seconde,
whiche is 2. multiplie the denominatoꝝ of
the other, whiche is 2. 4. and 5. and the pro-
duct is 8 0. to set ouer the common denomi-
nator thus, $\frac{80}{120}$ li. equall to the seconde fra-
ction $\frac{2}{3}$ li.

Likewise by the numerator of the thirde fra-
ction, whiche is 3. multiply the denominatoꝝ of
the other whiche is 2. 3. and 5. the
product is. 9 0. to set ouer 1 2 0 thus $\frac{90}{120}$ li.
and is in value equall with the third fraction
 $\frac{3}{4}$ li.

Lastly by 4. the Numeratour of the fo-
werth fraction, multiplie the denominatoꝝ of
the other, whiche is 2 . 3 . and 4 . and the
product is 9 6. to sette ouer the common de-
nominator

nominator thus $\frac{9}{12}$, and is in value equal with $\frac{3}{4}$ li. and so you haue fower newe fractions of one Denomination, for the fower firste of contrary Denomination, whiche is the effecte causyng the reduction.

Then accordyng to former instruction, adde together the Numeratours of all the newe fractions, beyng of one Denominatiou, whiche is 60. 80. 90. 96. and make 326. to sette ouer the common Denominatour, thus $\frac{326}{120}$, the whiche appearyng to bee a fraction improper, diuide the Numerator by the Denominatour, and the quotient will shewe the unities in the same, and the proper fraction, all whiche iz 2. and $\frac{86}{120}$ li. whiche is 2. li. 14. s. 4. d. the iuste value of the fower fractions: For $\frac{1}{2}$ li. is 10. shillynges, $\frac{1}{4}$ li. is 13. s. 4. d. $\frac{1}{4}$ li. is 15. s. and $\frac{1}{2}$ li. is 16. s. and make together, 2. li. 14. s. 4. d. as the woork of Reduction hath brought forth the. &c.

If the number of Fractions bee so many, that the Reduction of them would bee tedious to bee made at one tyme, then you maye reduce parte of them at one tyme, and the reste at an other, and so make twoo newe Fractions of all the firste. Then reduce the

Reduction

Said twoo newly made both into one, and so you haue doen, as example maie declare.

To byng $\frac{1}{2} + \frac{2}{3} + \frac{1}{4} + \frac{2}{5} + \frac{1}{6} + \frac{2}{7}$. li. all into one fraction, would seeme tedious to a learner to performe. Wherefore reduce three of the firste together, and thei will make $\frac{1}{2} \frac{2}{3} + \frac{1}{4} + \frac{2}{5} + \frac{1}{6} + \frac{2}{7}$. and makes in one $\frac{3}{2} \frac{4}{3}$. li. Then reduce the three laste figures together, and you shall haue $\frac{9}{24} + \frac{20}{24} + \frac{21}{24}$, and makes in one $\frac{5}{2} \frac{6}{4}$. and so haue you twoo newe fractions for all the other 6. Lastly reduce the twoo newly made into one and you shall finde $\frac{20304}{1760}$ li. whiche is worth 3. li. 1. o. 8. 6. d. the iuste valewe of the sixe firste. &c.

Thus muche maie seeme sufficient for reduction of proper fractions, whiche are partes intire of an unitie, and neither greater, nor so muche as the said unitie, and I accompte suche improper, whiche are either greater then an unitie, or lesse then an intire parte, as some other kinde bee, whiche are but partes one of another, and bee called Fractions of fractions, whereof the reduction followeth.

To reduce fractions of fractions.

To reduce fractions of fractions, whiche are partes one of another, all not makynge so muche as an unitie, you shall multiply all the

the Denominatours together, and so haue one Denominatour, for an newe and p;roper Fraction: then ye shall multiplie all the Numeratours together, and haue one Numerator to sette ouer the newe Denominator, and finde one p;roper Fraction for many other, as by example maie appeare.

To reduce $\frac{1}{3}$. of $\frac{2}{3}$. of $\frac{3}{5}$ li. into one, multiply the denominators together, as 3. by 4. is 12 and that by 5. maketh 60. for a newe Denominator. Then multiply the numerators together, as 2. by 3. is 6. the whiche by 4. maketh 24. to bee sette ouer the Denominator thus, $\frac{24}{60}$ li, whiche is the value of 8. s. represented by the three firste fractions.

Sometymes occasion maie procure a reduction of proper Fractions, and improper of bothe sortes all together (that is to saie) whole numbers, proper fractions, and fractions of fractions to bee broughte into one, as by example,

To byng 3. and $\frac{2}{3}$. li. with $\frac{2}{3}$. li. and $\frac{1}{2}$. of $\frac{2}{3}$. of $\frac{1}{4}$. li. into one, you shall firste byng the whole number, and the Fraction thereto belongyng, into one Fraction improper, the whiche to performe, you shall multiplie the whole number 3. by the denominator of the

fraction,

Abreuiation

fraction thereto belongyng , whiche is also 3 . and the product is 9 . wherevnto adde 2 . the Numerator of the same fraction , so haue you $\frac{11}{3}$. Pi. for the whole number and first fractiō . Then byynge the 3 . fractions of fractiōs into one , as before is taught , whiche will make $\frac{6}{24}$. Pi. so shall you haue 3 . Fractions for all , whiche are $\frac{1}{4}$. Pi . $\frac{3}{4}$. Pi. and $\frac{2}{24}$ Pi . and reduced make $\frac{1344}{288}$. Pi. whiche is 4 . Pi. I 3 . s . 4 . d . and so muche representes the Figures of the Example.

Of diuision in broken Numbers , and firste of Abreuiation of greater termes into smaller.



D abreuiae a fractiō of great termes (that is of many Figures) into an other of smaller termes , or fewer Figures , you shall consider what Digette is moste apte to diuide aswell the Numerator , as also the Denominator of any suche fraction , as is to bee abreuiated , and sette the 2 . quotientes one ouer the other , and you shall haue a newe fraction of smaller termes then the firste , as by example .

To

To abbreviate $\frac{54}{72}$ li. giue regard what Digit or figure will diuide both the numerator and denominator, and that may be doen by 4 sondrie digettes, as by 9. by 6. by 3. and by 2 and the mooste apte of them is 9. And as you make your division, sette the quotient of the numerator aboue the same, and the quotient of the denominator vnder the same denominator thus. Wherein you maie perceiue that in 54, 9. is contained $\frac{6}{72}$ li. 6. tymes and so 72. 8. tymes, and so $\frac{72}{8}$ you haue a fraction of twoo figures $\frac{9}{8}$. li. for the other of 4. Figures $\frac{9}{8}$. the greater termes abbreviated into smaller, and the value not channged.

Likewise by the same order, consider that 2. beyng made divisor of $\frac{9}{8}$. li. you shall haue that fraction abbreviated to $\frac{1}{4}$. li. whiche in smallest termes that maie bee, is of equalle valewe with the twoo other: for euery of the same representeth 1 y. shillynges, $\frac{1}{6}$. li. and thus is the practise.

When the learner findeth a fraction to be abbreviated, whiche beyng of greater termes then with facilitie to knowe the Digette, mooste apte for the abbreviation, then let hym examine the example by mediation thus, 2. beyng alwaies Divisor, as in this fraction

Abreuiation

$\frac{4}{2}$. li. for example.

$$\begin{array}{r} 3 \\ \hline 6 \\ 12 \\ 24 \\ \hline 48 \\ 24 \\ 12 \\ \hline 6 \end{array}$$

By 2. $\frac{4}{9}$ maketh $\frac{1}{3}$. li. the whiche by 3. is $\frac{1}{6}$.

Hereby three mediations the fraction $\frac{4}{9}$. pounde, is brought to $\frac{1}{6}$. pounde, where it is with facilitie perceived, that 6. is halfe of 12. and therefore $\frac{1}{3}$. li. is settedoun for it, and so the abreuiation ended.

Sometyme a fraction maie require 2. 3. or more digettes, to bryng the same to smal-
lest termes, as by sundrie examples the effect
maie appeare by this fraction $\frac{160}{360}$. pounde.

By

$$\begin{array}{r} 2 \\ \hline 4 \\ 80 \\ \hline 160 \end{array}$$

By 2. $\frac{240}{160}$ maketh $\frac{3}{2}$.

$$\begin{array}{r} 120 \\ \hline 6 \\ \hline 3 \end{array}$$

By 3 $\frac{160}{240}$ it can not.

$$\begin{array}{r} 240 \\ \hline 160 \\ \hline 80 \\ \hline 40 \\ \hline 20 \\ \hline 10 \\ \hline 5 \\ \hline 4 \\ \hline 2 \\ \hline 1 \end{array}$$

By 4 $\frac{240}{60}$ is $4\frac{1}{2}$. wh.

Here note, that when a fraction hath equall number of Ciphers, in the place or places towarde the right hande, then the abreviation may bee made the shorter, by cutting awaye the Ciphers of bothe sides, in equall number, thus.

$$\begin{array}{r} 0 \\ \hline 8 \end{array}$$

By

Abbreviation

2. II.

I 6|0

By 8. 240 maketh $\frac{1}{3}$.

3

212

2 If.

16100

161000

24 | 00

24 | 000

347-111

238 1 2. 416

Wherein doeth appeare, that the ciphers
of every of the three fractions, separated
from the figures, then every of the same is
 $\frac{2}{24}$. and diuided by 8. sheweth $\frac{1}{3}$. li. for smallesse
termes, and so in al other like unto the same.

To abbreviate $\frac{75}{100}$: pounde, there is required the vse of twoo figures, whiche is 3 . and 5 . to beginne with the one at pleasure to bee taken , and to ende with the other by consequence, as in example, practise doeth shewe,

5.lib

25

75

દ્વારા १२० દ્વારા

40

8

The

$$\begin{array}{r}
 5 \text{ lib.} \\
 \hline
 15 \\
 75 \\
 \hline
 \text{By 5. } 120 \text{ by 3.} \\
 \hline
 34 \\
 \hline
 8
 \end{array}$$

To abreviate $\frac{112}{192}$, there is required the
use of one figure onely, for the mosste apte,
whiche is 4. and maie bee doen by twoo Fi-
gures, whiche is firste by 8, and then by 2. as
practise will manifesse.

$ \begin{array}{r} 7 \text{ li.} \\ \hline 28 \\ 112 \\ \hline \text{By 4. } 192 \end{array} $	$ \begin{array}{r} 7 \text{ lib.} \\ \hline 14 \\ 112 \\ \hline \text{by 8. } 192 \text{ and by 2} \\ \hline 24 \\ \hline 12 \end{array} $
---	---

To abreviate $\frac{112}{192}$. lib. mosste aptly there is
required twoo figures, 8. and 4. and with
more circumstaunces by 4. and 2. as by ex-
ample.

By

Division

4 lib.

$$\begin{array}{r} \\ \hline 16 \\ 128 \\ \hline \\ \text{By 8. } 160 \text{ and by 4,} \\ \hline 20 \\ \hline 5 \end{array}$$

4 lib.

$$\begin{array}{r} \\ \hline 8 \\ 32 \\ 128 \\ \hline \end{array}$$

By 4. twise 160 and by 2.

$$\begin{array}{r} \\ \hline 40 \\ 10 \\ \hline \\ 5 \end{array}$$

To abbreviate $\frac{7}{100}$ li. seeke for the mooste apt
diget to diuide by, and that is 5. by the which
at 3 tymes is brought for the $\frac{1}{2}$ li. whiche is
15. s, as by example.

lib.

lib.	
	3
I	5
7	5
3	7
By 5.	<u>5 0 0</u>
	1 0 0
	2 0
	4

Thus muche may seeme to suffice for A-
breviation of Fractions, whiche is perfor-
med by Division practized in whole noum-
bers. Howbeit division of fractions is much
contrary, as by examples the effect may ap-
peare.

When one fraction is to be diuided by an
other, that is to say, when you would knowe
how many tymes 1 fraction is contained in
an other, set the diuisor one the li. li.
lefte hande the other, & a crosse
betweene them thus, which re- $\frac{2}{3} \times \frac{7}{8}$
quireth by Division to make
knowen how many tymes $\frac{2}{3}$ li. is contained
in $\frac{7}{8}$ li. Then multiplie the numerator of the
diuisor by the denominator of the diuidende,
and that product shalbe Diuisor. Likewise
multiplie

Diuisiōn

multiplie the numerator of the diuidende by the denominator of the divisor, and the product thereof shalbe diuidende, and the same diuided by the laste divisor sheweth in Quotient that is required in the woork, as practise may more amply declare.

li. 35 li.

$$\begin{array}{c} \times \\ \frac{3}{3} \quad \frac{7}{8} \\ \hline 16 \end{array}$$

tymes & $\frac{1}{8}$ of a tyme.

$$\begin{array}{r} x(3 \\ 35 \quad | \\ x6 \end{array}$$

In this practise appeareth that 2. numerator of the divisor multiplied by 8. the Denominator of the diuidende, produceth 16. set vnder the Crosse for divisor, and 5 denominator of the Divisor multiplied by 7. the Numerator of the diuidende produceth 35. for diuidende to set ouer the Crosse. The whiche 35 diuided by the divisor thereof 16. sheweth in quotient that $\frac{2}{3}$ li. whiche is 8.s. is contained in $\frac{7}{8}$ li. whiche is 17. s. 6. d. 2 tymes, and $\frac{1}{8}$ of a tyme, and note that $\frac{2}{3}$ lib. twice is 16 s. and $\frac{1}{8}$ of 8 s. or 1 tyme is 1 s. 6 d. and maketh together 17 s. 6 d. the iuste value of the fraction diuided.

To diuide $\frac{2}{3}$ lib. by $\frac{1}{8}$ lib. by the same order
the

the practise followeth.

$$\begin{array}{c} 9 \\ \times \frac{2}{3} \\ \hline 6 \end{array} \quad | \quad \begin{array}{l} (1) \\ 9 \\ - 6 \\ \hline 3 \end{array} \quad | \quad 2 \text{ tymes and } \frac{1}{2}$$

Wherein appeareth that in $\frac{2}{3}$ li. whiche is 15 s. $\frac{2}{3}$ li. being 6 s. 8 d. is contained 2 tynes, and $\frac{1}{2}$ in value equall to the dividende whiche is also 15 s. &c.

As in woorkes by whole numbers a smal-ler somme cannot bee diuided by a greater, but ts set ouer the greater, to shewe in pro-portion a part of a tyme, gauen so in diuision of fractions, when the diuisor is greater tha the dividens. Then the Dividend produced will be lesse then the produc'd Diuisor, and therefore to stande ouer the diuisor, to shewe the proportionall part of a tyme, sought for by the woork, the effect by example, made more plaine.

If I demaunde how many tynes $\frac{1}{2}$ lib. is contained in $\frac{2}{3}$ li. reason doth perswade that no tyme in the Quotient will appeare. Ne-uerthelesse proceeding in the woork, the di-uidend will shewe such part of a tyme as pro-

J.J. portion

Diuisiōn

portion will allowe, & in practise appearing.

$$\begin{array}{c} 12 \\ \times \frac{1}{15} \\ \hline 12 \\ 15 \\ \hline 12 \end{array} \quad \left| \begin{array}{l} \frac{12}{15} \text{ of a tyme.} \\ \hline \end{array} \right.$$

Hereby doth appeare that $\frac{1}{15}$ parte of the divisor is the value of the diuidend, and therfore wanteth of a tyme, and $\frac{12}{15}$ of 16 s. 8 d. the divisor is 13 s. 4 d. the iuste value of the diuidend $\frac{2}{3}$ li. the effecte sought for by the worke.

To shew the effect in fractions impropere, may satisfie the desires of suche as the same would knowe, and therfore is furthered the example followyng.

If it be demaunded howe many tymes $\frac{2}{3}$ li. is contained in 4 li. and $\frac{2}{3}$. lib. You shall firste make 4. li. and $\frac{2}{3}$ in fraction, and it will bee $\frac{22}{3}$ which is the diuidend to be diuided by $\frac{2}{3}$ the divisor, and so in the Quotient will appeare, that is sought for as by example practized.

$$\begin{array}{c} 96 \\ \times \frac{3}{15} \\ \hline 96 \\ 15 \\ \hline 12 \end{array} \quad \left| \begin{array}{l} 3 \\ 96 \\ 15 \\ \hline 12 \end{array} \right. \quad \begin{array}{l} 16 \text{ tymes and } \frac{6}{15} \\ \hline \end{array}$$

Here the effect sought for, beyng how ma-

ny

ny tymes 15 s. whiche is $\frac{3}{4}$ li. is contained in
4 li. 16 s. whiche is $\frac{2}{3}$ li. the same in Quo-
tient appeareth to be 6. times & $\frac{5}{6}$ of a tyme,
and euery tyme containeth the value of the
Divisor, whiche is 15 s. makech in all 4 li.
10 s. and therwith $\frac{5}{6}$ of a tyme which is 6 s.
maketh 4 li. 16 s. the iuste value of the Di-
uidende $\frac{2}{3}$ li. whiche is the effect the wo^{ke}ke
requires.

Multiplication of fractions.

 **M**ul^tiplication of Fra-
ctions, is in nature contrary to the
workynge by whole noumbers, for as
the one increaseth a Noumber of Unities:
so the other increaseth a Dimunition of a
Fraction. For in multiplying 3 lib. by 2 li.
you saye 2 tymes 3 maketh 6 lib. in whole
Noumbers, but $\frac{1}{2}$ li. by $\frac{3}{2}$ lib. you muste un-
derstand the saying $\frac{1}{2}$ li. taken $\frac{3}{2}$ of a tyme ma-
keth halfe a Pounde 10 s. the which to bring
sonthe by order of Multiplication of Fracci-
ons, you shall multiply the Denominators
together, and the product thereof is an newe
Denominator. Then must you multiply the
2 Numerators together, and the product is
the numerator to the fo^{re}said denominator,

I.iij. and

Multiplication.

82

and you haue done, as by example the effect may appear.

lib. lib. lib. lib.

$$\frac{2}{3} \text{ by } \frac{3}{4} \text{ yeldeþ the } \frac{6}{12} \text{ and abbreviated is } \frac{1}{2}$$

Here note, that as $\frac{2}{3}$ lib. taken $\frac{3}{4}$ of a tyme maketh $\frac{6}{12}$ li. which is 10 s. yeuen so $\frac{1}{2}$ lib. taken $\frac{3}{4}$ of a tyme maketh also $\frac{6}{12}$ lib. whiche is likewise 10 s. so that it soþceþ not which is set before the other.

If occasion procure whole numbers and fractions to bee multiplied together, then your whole number is to bee brought into forme of fraction, and so multiplied by former order, the Product will shewe that is sought for, as example may manifest.

To multiply 5 li. $\frac{2}{3}$ by $\frac{3}{4}$ li. reduce the first fraction, and the whole number into a fraction improper, and it will be $\frac{17}{3}$ li. the which multiply by $\frac{3}{4}$ li. produceth $\frac{51}{4}$ lib. as in practice.

$$\frac{5\frac{2}{3}}{1} \text{ by } \frac{3}{4} \text{ yeldeþ } \frac{51}{4} \text{ whiche is } 4 \text{ li. } 7 \text{ s.}$$

The whiche product wanteth so muche of the firſte value, as $\frac{1}{4}$ li. wanteth of an Unitie, whiche

whiche is $\frac{1}{2}$ part, and for the understandyng
of the reason therof, you shall note, that if 5 li.
16 s. bee multiplied by 1 lib. it will not
chaunge the value, if by 2 li. the value will
double or by 3. ie will be treble, and so forth in-
finitely. But to the contrary, if you multiplie
the said 5 li. 16 s. by $\frac{1}{2}$ lib. it diminisheth $\frac{1}{2}$ in
value, as practise hath shewed. If by $\frac{1}{3}$ lib. it
will want $\frac{1}{3}$ in value. If by $\frac{1}{4}$ lib. halfe the va-
lue diminisheth, and so infinitely, accordingyng
to the value of the fraction multiplicator.

To multiplie 3 li. $\frac{2}{3}$ with 4 li. $\frac{5}{6}$ reduce euer-
ry of the whole numbers into the fractions
to it belonging, as 3 li. $\frac{2}{3}$ reduced is $\frac{11}{3}$ li. and
4 li. $\frac{5}{6}$ makeh $\frac{23}{6}$ li. the whiche multiplied to-
gether, produceh $\frac{253}{18}$ li. whiche is 17 li. $\frac{13}{18}$ or
14 s. 5 d. $\frac{1}{3}$.

The trueth whereof by reason to witness,
consider, that 3 li. by 4 li. produceh 12 lib.
then 3. li. by $\frac{2}{3}$ the contrary fraction yeldeh
2 li. 10 s. and 4 li. by $\frac{5}{6}$ the contrary fraction
is 2 li. 13 s. 4 d. Lastly 2 fractions, the one
by the other produceh $\frac{11}{18}$ li. whiche is 1 li s.
1 d. $\frac{1}{3}$. and togeher make the foresaid somme
of 17 lib. 14 s. 5 d. $\frac{1}{3}$ agreeing with the pro-
duct by the Rule, as the addition of the seve-
rall partes will appearre hereafter set downe.

Multiplication.

	lib.	s.	d.
3	4	12.	—. —
3	2	10.	—
4	2	13.	4
$\frac{1}{3}$.11.	—	$\frac{1}{3}$
<hr/>			
Makēs ————— 17.14.—5. $\frac{1}{3}$			

Hereby is to be perceiued aswell the order of the rule, as also the reason of the producte, herevnto hid, from many whiche can multiply boken numbers.

Substraction of fractions.



To substraie one fraction from an other, there is required that both the boken numbers be of one denominatio, and then the lesser numerator rebated from the greater, the rest will appeare to be set ouer the common Denominator, and so the worke is ended, as by example the effect may appeare.

To substraie $\frac{3}{8}$ li. from $\frac{7}{8}$ li. rebate 3. from 7. rest 4. to sette ouer 8. the commom denominator thus $\frac{4}{8}$ li. whereby to understande if you take $\frac{3}{8}$ whiche 7 s. 6 d. from $\frac{7}{8}$ li. which is

is 17 s. 6 d. the reste will bee $\frac{4}{5}$ li. whiche is 10 s. and so of all other when both be of one Denomination, as the sondy herereafter set downe.

$\frac{2}{3}$ lib. from $\frac{3}{5}$ lib. reste $\frac{1}{5}$ lib. and $\frac{1}{4}$ lib. from $\frac{2}{3}$ lib. reste $\frac{1}{12}$.

Likewise $\frac{4}{10}$. lib. from $\frac{7}{10}$. lib. reste $\frac{3}{10}$. lib. so $\frac{2}{12}$. lib. from $\frac{11}{12}$. lib. reste $\frac{7}{12}$. lib. &c.

Nowwithstandyng, when occasion procurereth Substraction, the fractions beyng of contrary Denomination, then you muste reduce them into one Denomination, and so made apt for the worke as the former, wherof some example followeth.

To Substraie $\frac{2}{3}$. li. from $\frac{3}{4}$. li. you muste reduce them by order taught for reduction of proper fractions: and so you shall haue for $\frac{2}{3}$. li. $\frac{8}{12}$. li. and for $\frac{3}{4}$. li. $\frac{9}{12}$. li. and beyng brought to one denomination Substraie $\frac{8}{12}$. from $\frac{9}{12}$. and the reste is $\frac{1}{12}$. li. and so you haue doen, wherein understande, if you take $\frac{2}{3}$. or $\frac{8}{12}$. lib. from $\frac{3}{4}$. or $\frac{9}{12}$. lib. the reste is $\frac{1}{12}$. li. the whiche is 2 o. d. as I 3. s. 4. d. from 1 5. s. the reste is 2 o. d. as aforesaid.

The like effecte taketh place in fractions impropere of bothe kindes, as firste by exam-

Subtraction

ple of Fractions of Fractions shall appere.

To Substraie $\frac{1}{2}$. of $\frac{2}{3}$. lib. from $\frac{3}{4}$. of $\frac{4}{5}$. lib. firſte reduce the twoo firſte into one proper Fraction, whiche is $\frac{3}{6}$. lib. and the twoo laſte also into one, maketh $\frac{12}{20}$. pounde, whiche beyng of contrary Denomination, muſt bee brought into one, and you ſhall for the firſte haue $\frac{4}{12}$. lib. and for the laſt $\frac{12}{12}$. lib. of the whiche leſſer Numerator 4.0. ſubſtraid from the greater 72. the remaine is $\frac{1}{12}$. $\frac{2}{3}$. which is 5. $\frac{1}{3}$. 4. d. and the ſame to underſtande ſo to bee note, that $\frac{1}{2}$. pounde, beyng 6. $\frac{1}{2}$. 8. d. taken out of $\frac{12}{20}$. lib. whiche is 2. $\frac{1}{2}$. the reſte is 5. $\frac{1}{3}$. 4. d. as aforesaid, whiche is $\frac{1}{12}$. li. &c.

Likewiſe of Fractions improper, greater than their unitie, here followeth an example.

To Substraie 2. lib. $\frac{1}{2}$. from 4. lib. $\frac{3}{4}$. firſte reduce 2. lib. $\frac{1}{2}$. in one, maketh $\frac{8}{3}$. pounde, and 4. lib. $\frac{1}{4}$. also in one is $\frac{12}{3}$. pounde, and brought to one Denomination, will bee $\frac{12}{3}$. li. and $\frac{8}{3}$. pounde, whereof the leſſer Numerator 32. taken from the greater 57. the reſte is $\frac{25}{3}$. lib. whiche is 2. pounde 1. $\frac{1}{2}$. 8. d. and eaſely perceived in former manner. For 2. lib. 1. $\frac{1}{2}$. $\frac{1}{3}$. 4. d. taken from 4. lib. 1. $\frac{1}{2}$. $\frac{1}{3}$.

the

the rest is two pounds, one shilling eight pence, as by the worke doeth appeare.

The Addition of Fractions,

 Of addition of fractions there is to bee considered, as was in Subtraction: that the broken numbers bee of one Denomination before they bee added, & then put the Numerators into one, to sette ouer the common Denominator, and so the woorke is ended. But if they bee of contrary Denomination, they must bee brought into one, and so made apte for woorke: as by example moxe at large, you maie perceiue.

To add $\frac{3}{4}$. $\frac{2}{3}$. and $\frac{1}{2}$. into one fraction, adde together all the Numerators, as 3.2. and 1. make 6. to sette ouer the common Denominator 4, thus $\frac{6}{4}$. whiche is 1. pound 1 o. shillingers, and so the woorke is ended.

Howbeit, if the fractions bee of disorderly Denominations, as $\frac{1}{4}$. $\frac{4}{9}$. and $\frac{1}{2}$. pounde, then they muste bee reduced, and will bee $\frac{9}{36}$. and $\frac{16}{36}$, and the Numerators added together, as aforesaid make $\frac{25}{36}$, whiche is 2. lib. 7.s. 8.d. And the same to understande

Abreuiation

I^s to bee , note that $\frac{3}{4}$. lib. I 5. s. with $\frac{4}{5}$. lib,
I 6. s. added to $\frac{5}{6}$. lib. I 6. s. 8. d. make to-
gether 2 . pounde 7 . shillynges 8 . pence, as
the w^orkē hath b^rought forthe.

If you adde together Fractiōns of Frac-
tions, as $\frac{1}{2}$. of $\frac{2}{3}$. lib. to $\frac{3}{4}$. of $\frac{4}{5}$. lib. then re-
duce the twoo firste into one maketh $\frac{3}{5}$. lib.
and the twoo laste is $\frac{11}{20}$. pounde , and in one
Denomination is $\frac{49}{120}$. li. and $\frac{71}{120}$. lib. whiche
make $\frac{112}{120}$. and is I 8.s. 8. d. and by memorie
to witnesse the truthe, consider that $\frac{1}{2}$. of $\frac{2}{3}$. li.
is 6.s. 8. d. and $\frac{3}{4}$. of $\frac{4}{5}$. pounde is I 2 . shil-
lynges , the whiche together maketh I 8.s.
8.d as the w^orkē findeþ.

Likewise , if you adde sonderie whole
Noumbers , ioyned with Fractiōns into
one, you muste either reduce all into Fractiōns
improper, and so to one Denomination,
addyng the Numeratours together, to sette
puer the common Denominatour by former
order , or els you maie adde the whole nom-
bers firste together , and reduce the Fractiōns
onely, and so ende the w^orkē, as in exam-
ple followyng appeareth.

To adde 2 . lib. $\frac{3}{4}$. to 5. lib. $\frac{2}{3}$. firste reduce
2 . lib. $\frac{3}{4}$. yeldeþ $\frac{11}{4}$. and againe 5. lib. $\frac{2}{3}$. ma-
keth

kech $\frac{3}{4}$. li. and in one denomination is $\frac{11}{20}$. and $\frac{21}{20}$. and added maketh $\frac{16}{20}$. li. whiche is eight pounde 7.s.

Otherwise, adde the whole noumbers together, that is 2.lib. and 5.lib. maketh. 7.lib. Then $\frac{3}{4}$. lib. and $\frac{1}{4}$. lib. reducted to one Denomination maketh $\frac{7}{20}$. lib. whiche is 2 7.s. and put to the foresaied 7.lib. make together 8.lib. 7.s. as before.

Such as in readyng of Substraction and Addition do not well vnderstande the effect. Let them labour well to understand Nume ration and Reduction of fractions, for ther in is caught all thinges needfull to make the rest easie, &c.



The third part containyng
the Rules of Proportion, and
first of the Rule of 3.

The Rule of threis is framed of the former partes of Arithmetique, especiallie of Multiplication, and Division. And is called the Rule of threes, for that by threis Numbers knownen, and set doun in order as the woyke requireth, is founde a fourth number, sought for and desired, and the commodite growing by use of the said Rule procured. Learned writers doe name it the Golden Rule, exceeding all other, as Golde doth other mettals. It is also called the Rule of Proportion, for that ever the fowerth and unknownen Number found by the woyke, shall beare such proportion unto the thirde of the knownen numbers, as the second beareth to the firste. The effect better appearing in fewe Examples, then in many wordes.

If 2. clothes cost 16 li. what 15. clothes.

Here you see 3 Numbers knownen, as 2 Clothes

Clothes bought or paied at 16 lb. and 15
 Clothes to bee bought or paied after the
 same rate, the price of whiche 15 Clothes is
 the fowerth Number sought for and desired,
 founde by the woorkie in order as followeth.
 First you shall multiply the second and third
 Numbers the one by the other, and the pro-
 duct thereof diuide by the first Number, and
 so shall you haue in Quotient the fowerth
 Number sought for & desired, as by example.

Clo.	Nb.	C.
If 2. cost 16. what 15		
	16	
		240 120
		90
	15	222 10
		240

By this example appeareth that 15. the
 third number, multiplied by 16. the seconde
 number, produceth 240. the whiche diuided
 by the firste number 2. yeldeþ in quociente
 12.0. lb. for the price of 15. clothes, and in
 such proportion as 16. beareth to 2. that is
 to say, 8. lb. for every clothe.

The prooffe of this rule is made chāgyng
 the

Rule of 3 direct.

the places of 3. of the 4. numbers, and so one of the 2. firste will bee founde in quotient, if the worke bee true. As by example.

fl.	clothes.	li.	
If I 20. buye 15. what 16.			
	15		
	80		C.
	16		240 2
			120
		240	

C.	lib.	C.	
Or if 15. cost 120. what 2			
	2		3
			19
		240	240 16
			155
		240	

Here is to bee noted, that as well in practise of the rule, as also in the proove, the firste and thirde numbers, must bee of one Denomination and nature, & then of consequence, the fowerth number will bee of denomination and nature, as is the seconde, the effecte whereof

Whereof as in the former examples plainly appeareth, so in other following more at large may be seene.

If 1 pounde waight of Pepper coste 2 s.
8 d. what 9 ounzes of Pepper.

Here the first and thirde Numbers are of one nature, but not of one Denomination. Wherefore before you woorke you must reduce the first number into ounzes, and so make apte for the worke. Likewise for that the seconde Number is in 2. Denominations, as shillinges and pence, therefore you must reduce the shillinges into pence, and then your 3 Numbers beyng apt for the woorkē, will stand thus.

If 16. ounzes cost 32. d. what 9. ounzes,

16	9	4
12	8	2
288	11	8. d.
	X	66

If 1. parde coste 3 lib. 7. s. 6 d. what 75. yardeſ.

The middle number in this example is not apt for the woorkē, till the whole be brought into

Rule of 3. direct.

into pence, whiche is the smallest Denomination of 3. in the same seconde Number, wherefore it must be reduced, and will make 8 i o pence, and will stand thus apt for the worke.

If 1 yard cost 8 i. o. d. what 7 5 yardeſ.

	7 5	
	4 0 5 0	
	5 6 7 0	
	6 0 7 5 0	
	6 0 7 5 0	6 0 7 5 0
	X X X X	

Whereche diuision is made more for plainnes in obseruyng the Rule, then for any necessitie. For one the first number cannot any thing diminishe in Diuision, nor any thyng augmente in Multiplication, as by the Diuision before may appeare, and in the multiplication required in the prooofe following is manifested.

If 75. yardeſ cost. 607 5 0. d. what 1. yard

I	47	d.
6 0 7 5 0	6 0 7 5 0	6 1 0
		7 5 5 5
		7 7
		Thus

Thus you may perceiue, that the Quotient in the firste wo^rke, is equall with the dividende in the same, and nothyng diminished by the diuision. And likewise the Producte of the seconde wo^rke, is equall with the multiplicande, and nothyng augmented by the multiplication: wherefore it is good to note, that such divisions and multiplications may bee cutte of, when 1. is one of the 3. knownen numbers in this rule, as by some examples the effecte may appeare.

If the C. weight of Currance coste 3 3.s.
4. d. what 1.lib.

The sayd C. reduced into pound waights to agree in Denomination with the thirde number, and the seconde number reduced into pence, the smaller denomination of two in the same, then all the three are made apte for the whole wo^rke, and will stande thus.

If 1 1 2 pi. coste 4 0 0 d. what 1 lib.

$$\begin{array}{r}
 6 \\
 \times 7(4) \\
 \hline
 408 \\
 \times 12 \\
 \hline
 138 \frac{6}{12} \text{ or } 13\frac{1}{2}
 \end{array}$$

Here the multiplication is omitted, for

R.J. that

Rule of 3 direct.

that i. the Multiplicatour can nothyng
augmente in Multiplication, as afore saide,
and therefore the seconde Number is diui-
dende where it standeth, and beeynge diuided
by the firste, the quotiente is 3.d. $\frac{4}{7}$. whiche
fraction is halfe a penie, and somthyng more
wherefore alwaies when i. is the third num-
ber, diuide the seconde by the firste, and the
quotient will bee that you seeke for.

If i. elle coste 20.d. what 4.8 | 960.d.

$$\begin{array}{r} 20 \\ \hline 960 \end{array}$$

Here the division is omitted, because that
i. the firste Number, can nothyng diminishe
in division. Wherefore in all workes where
one is the firste number, the Producte made
by multiplication of the seconde by the third
is that you seeke for in the quotient, whiche
in this worke is 960.d. as appeareth.

If 4. s. 8.d. buye one ounze of siluer, how
many ounzes buyeth 100.l.

After you haue made the firste and thirde
numbers to agree, in denomination by re-
duction, bryngyng bothe into pence, as the
rule

rule teacheth, then the question will stande
thus.

$$\begin{array}{r}
 \begin{array}{c} x 4(3) \\ \hline \end{array} \\
 \text{d. onz, } \quad 468(2 \text{ d. onz.}) \\
 \text{If } 56, \text{ buye I. what } \underline{x 4000 | 428 \frac{1}{2}} \\
 \begin{array}{c} 5666 \\ -55 \end{array}
 \end{array}$$

Here the multiplication is omitted in former respecte, and the thirde number the true dividende, and diuided by 56. yeldeth in quotient 428 ounces $\frac{1}{2}$. and so all other woolkes, where I. is the seconde number.

The seconde parte of the Rule of three, is of effecte contrary to the former, and is named the Backer Rule of three, vpon cause reasonable: for as in the former Rule, the fowerth number is euer so muche greater then the thirde, as the seconde is aboue the firste, so in the Backer Rule, the fowerth number is euer so muche lesser then the seconde, as the third is greater then the firste: As to the contrary, so muche greater then the seconde, as the third is lesser then the firste.

And the order of this Backer Rule is such, that when the three knownen numbers

R. iij. are

Backer Rule of 3.

are sette dounne , then you shall multiply the
firste and seconde , the one by the other , and
the Producte thereof diuided by the thirde
number , and so finde in the quotiente , that is
desired , & sought for by the worke : as by ex-
amples the effecte more amptie maie appearc .

When the bushell of wheat is worth 3 s.
4 d. the Wheaten Lofe waiyng 20. ounzes
for 1 d. what shall the penny Wheaten Lofe
way when the bushell of wheat is worth 5 s.

Herein touchyng the wooyke , you shall
giue no respect to the Bushell of wheate , but
to the price thereof , to be made the first num-
ber neither to the wheaten Lofe , but to the
weight thereof , for the seconde number , and
accordyngly of the bushell of wheate and the
price thereof , for the thirde number , and
then the three numbers agreeing in denomi-
nations apt for worke , as was taught in the
former part , then the example is thus to bee
set dounne and wrought .

d.

If 40. admit 2 0. ounz what 60 d.

40	800	122	onze.
		800 13. $\frac{2}{3}$	
		660	

Here

Here you may see, that as the Bushell of wheate is augmented in price, a thirde parte in 5 s. so the Lofe of a peny is diminished in waight a thirde parte of 20 ounzes. Wherein appeareath the nature of the rule, and the effect of that was taught before touchyng the same

Likewise, if 3 h d. admet 24. on 3 what 20 d.

24		3001.301.201
128	x	ounzes.
64	768	38 $\frac{8}{75}$
768	220	

So that as the peny Lofe waith 24. ounzes, when wheat is at 2 s. 8 d. the Bushell, it shall way 38 ounzes $\frac{8}{75}$, when wheate is at 20 d the Bushell.

This backer rule may be applied to sondry effectes of greater consequence then euer man understandeth. Wherfore I will set doun a fewe examples whiche to some men may seeme not superfluous.

The lode of Hay at 13 s. 4. the bottell of oþ, waing 6 lib. what shall the hottle waye when the like Lode of Hay is worth 20 s.

The Backer Rule of 3.

If 13 s. 4 d. admit 6 li. what 20 s.

12	160	12	x	Pis.
26	960	240	960	14
134				240
160				

If the lode 15 s. admit 5 li. bottell what 10 s. the lode.

5	0	7. li. 1
75	75	2
100	10	

The ounze of fine Golde worth 55 s. The Crowne of 5 s. waiyng 2 d. waight Troye, what shall the saide Crowne waye when fine Golde is at 3 li. by ounze.

55	5	d.
110	80	1
60		

If 60 s. admit 1 d. waight 20. Craines, what 45 s. Reduce and it will stande thus.

If 60 s. admit 44. graines, what 45 s.

60	(3)	58
<u>2640</u>	37	021
	69	graines
	<u>2640</u>	<u>(58 1/4)</u>
84	455	
	4	

The ounce of Starlyng at 2. s. 8. d. the
Englishe grote waiyng 2. d. $\frac{1}{2}$. waight, what
ought the Grote to wate, when the ounce of
starlyng is at 5. s.

Reduce and it will stande thus.

If 3 2. d. admitted 60. grain, what 5 0. d.

60

1920 reduce the answere upp graines.

The ounce of Starlyng at 5. s. the Englishe Grote waiyng 3 2. graines Troye.
What shall the said grote wate, when Starlyng is at 3. s. 4. d. the ounce.

Reduce and it will stande thus.

R. iiiij.

T.

Double Rule of 3.

If 6 O.z. admitt 32 graines, what 4 O.z.

$$\begin{array}{r} 32 \\ \hline 120 \\ 180 \\ \hline 1920 \end{array}$$

$$\begin{array}{r} 3 \\ 1920 \text{ graines.} \\ 440 \quad | 48 \\ \hline \end{array}$$

HE double Rule is so called, for that the answeres of suche questions, as the same requireth, are founde at the double working of the Rule of threedirecte whereof the order followeth.

If the 1 O.O. lib. waight cost carriage 20. miles 1 8. d. what will 1 500. lib. waight cost 60. miles?

In this question and all other like, you maie note, that the firste and thirde number, must bee of one deomination and kinde; as herein bothe miles, or bothe waight to bee taken at pleasure, for the firste worke. And then of consequence the other shall serue in the said firste and thirde noumber in the seconde worke: as by examples the effect maie appeare.

Example.

Example.

C.	d.	C.
If 1. waight coste 1 8. what 1 5.		
	1 8	
	—	
	1 2 0	
	1 5 d.	s. d.
	—	
	2 7 0 make 22. 6.	

s.d.

Againe if 2 0. mile cost 2 2.6. what 60

	60	
	—	
	1 3 2 0	
	3 0	s. d.
	—	
	2 2 0	1 6 7 . 6

As you may perceiue in the firste worke,
the waight is vsed, and not the miles : and in
the seconde the miles is vsed , and not the
waight, whiche rynge denomi nations myght
bee changed in the saide examples , and
tryng out the truthe accordingly , as by o
ther the effecte may appear.

If 1. C. waight coste 2. s. Carrage 2 5.
R.v. miles

Double Rule of 3.

miles : what 8. C. maight Carrage 100.
miles.

miles	s.	miles	s.
Sale if 25. coste 2. what 100		4	s.
	2	200	18
		<hr/> 200	<hr/> 25

C.	s.	C.	
Againe if 1.	coste 8. what 8	s.	Pi. s.
		<hr/> 64	maketh 3.4.

By these examples it is manifesse, that as one hundreth costeth 2.s. for carriage 25.miles, so it costeth 8.s. for carriage 100 miles, by the firste woork brought to the. And as 1.C. costeth 8.s. so 8.C. costeth 64.s. for carriage 100.miles by the secunde woork appearing, wherein is shewed the effecte purposed, by furtheryng of the said examples, either of the same maie bee taken to practise of the firste woork, and then the other of consequence must serue in the latter.

If 100 Pi. in 12 monthes gaine 10 Pi.
what 500 in 17 monthes.

Sale

The Rule of 3, Compound. 70

Say first, if 12 mouthes gain 10 li. what
17 mouthes.

I 7	X	li.
170	5(2)	14 $\frac{1}{6}$
	X70	
	X2 $\frac{1}{2}$	
	X1 $\frac{1}{2}$	
	21	

Againe if 100 li. gaine 14 li. 3. s. 4. d.
what 500 li.

Reduce, Multiply and diuide, and finde.
70. £ 16 s. 8 d..

The Rule of 3 Compound.

TO the Rule of 3 Compound, belongeth 5 knownen numbers, for the firste
parte of the same, whereof the seconde
and first must ever be of one Denomination,
and for practise thereof you shall multiply
the first and second Numbers, the one by the
other, and the product thereof shalbe your di-
visor. Then multiply the other thre (that is)
the third by the fourth, and the product ther-
of by the fiftie, and that laste product shall be
the dividende, and diuided by the forenamed
Divisor yeldeþ in quotient that whiche is
sought

The Rule of 3 Compound.

sought for and desired.

Example

If one hundred weight 20 Miles coste carriage 18 d. what 15 C. for 60 Miles.

C. Miles d. C. Miles

I. 20. 18. 15. 60

$$\begin{array}{r} 1 \\ \hline 20 \\ \hline 300 \\ 6 \\ \hline 900 \\ 18 \\ \hline 7200 \\ 900 \\ \hline 16200 \end{array}$$

Hencein appeareth that the first and second numbers multiplied together, the Product is 20 for Divisor, also the first, fourth, and thirde multiplied together, produceth 16200 the which diuided by 20 the divisor, yeldeth in quotient 810 d. whiche is 3. li. 7. s. 6. d. for true awnswere, agreeing with the firste example of the double Rule practized by the same question.

Likewise as in the thirde Question of the double

The Rule of 3. Compuond. 71

double Rule.

If 100*l.* in 12 monthes grafe 10*l.*
What 500*l.* in 17 monthes.

100	500
1200	5000
	17
	35000
	5000
	8500

x I	l.
850 00	70 $\frac{5}{6}$
x 22 00	
X	

Here may you see þ first & second numbers together, maketh the Divisor 1200. And the other three maketh 85000 for diuidend, and yeldeþ in quotient 70*l.* 16 s. 8 d. for awnswere, agreeing therein with the double Rule.

The seconde part of the Rule of thre com-
pound is contrary to the first, for in this part
the thirde and fourth numbers must be mul-
tiplied together, the product to bee divisor.
Then the first, second, and fift together mul-
tiplied, the product shalbe the Diuidend, and

Rule of 3 Compound.

so the Quotient will shewe that whiche is sought for and desired, and the thirde and first number is of one Denomination, the effect by example appearyng.

If 50 li. in 6 monthes gaine 7 li. in how many monthes will 60 li. gaine 10 li. Multiplie and diuide, and you shall finde 7 monthes $\frac{1}{7}$ as by practise.

li.	monthes.	li.	li.	li.
50	6	7	60	10
	6			7
—	—	—	—	—
300			420	
	10			
—	—	—	—	—
3000				

26	monthes.
3000	17
420	—

The third parte of the Rule of three compound, is contrary to the twoo former, for in the same, the firste and fiftie noumbers, bee of contrary denomination: and you muste multiplie the numbers, whereupon the question dependeth, whiche is the fiftie nomber, by the firste and thirde numbers, whiche giue the value, and the producte thereof muste bee your

your diuidende , then multiplie the seconde
and fowerth together , whiche are the num-
bers valued, and the producte shall be diuisor
and so you shall finde in quotient, that which
is sought for and desired. as by example.

If 4 . d . Starlyng bee worthe 5 . d . Fle-
mishe , and 12 . d . Flemishe bee worthe 8 .
souce Tournoys. Question, how many pencc
Starlyng maketh 50 . souce Tournoys,
whiche is the Frenche crowne by exchange.

Answeare, multiplie 50 . souce Tournoys
(whiche is the nomber wherevpon the Que-
stion dependeth) by 4.d. Starlyng, and 12.d.
Flemishe, whiche noumbers giue the value,
and the producte thereof shall bee your diui-
dende. Then multiplie 5.d. Flemishe, and 8.
Souce Tournoys (whiche are the numbers
valewed) the one by the other , and that pro-
ducce shall bee the diuisor , and so finde in
Quociente 60 . d . Starlyng , the whiche is
worthe the Crowne of 50 . Souce Tour-
noys, as by the practise maie appeare.

The Rule of 3. Compound.

D.	D.	D.	souce, souce.
4. Star.	5. Fle.	12. Fle.	8. Tou.
12	8		
<hr/>	<hr/>		
48	40		
2400		2400	160.d. Starly.
			440

In the fowerth parte of the Rule of threē Compounde, the first and fuenthe (or laste of the knownen numbers) are of one denominacion : and you muste multiplie the noumber wherevpon the Question dependeth, by the noumbers that haue valuation, and that producute diuided by the resulce of the noumbers whiche giue the valuation multiplied together, yeldeth in quocet that whiche is sought and desired. As by example.

If 4. d. Starlyng be 5. d. Flemishe, and 12. Flemishe bee 8. souce Tournoys. Question, how many souce Tournoys is 60. d. Starlyng worthe? Answeare. Multiplie 60. d. Starlyng (whiche is the noumber wherevpon the Question dependeth) by 5.d. Flemishe, & 8. souce Tourneys, the numbers valedwed, and the product beyng 2400 shalbe your diuidend. Then multiplie together the noumbers whiche giuent the value, whiche are

are 4.d. and 1.2. and the producte is 4.8. for
divisio[n], & the division made yeldeþ in Quo-
tient 50.souce Tournoys, as practise doeth
manifeste.

D.	D.	D.	sauce.	D.
4.Star.	5.Slem.	12.fle.	8.Tour.	60.starl
8			4	
40			48	
60				
2400				

2400 150.souce Tour.

488.
4

*The Rule of Companie with-
out tyme limited.*

LTwo menne in Companie, the firſte
put into ſtocke 45.Li. and the other
put in 68.Li. who gained 32.Li. Que-
ſtion, what portion of the gaue groweth to
either partie.

To aunſwer this Queſtion, and all o-
ther ſuche like, how many ſouer are ioyned
in Companie, their whole ſtocke ſhall euer

L.j. bee

Rule of Company.

bee the firske number in the Rule of threē di-
recte , and that whiche hath been gained by
their saied stocke , shall euer bee the seconde
number in the same Rule, and euery mannes
proper and particular stocke shall bee the
third number, and so woorkyng euery Quo-
ciente will shewe the portion of hym , vnto
whom the particular stocke doeth belong,
as by example the effecte more plainly ap-
pearyng.

	Li.	Li.	Li.
45			
68			
113			
		45	
		160	
		128	
		1440	
	8		
	9		
	3 x 4		
2440	12 Li.	84	

Likewise

	Li.	Pi.	Pt.
Likewise if $\frac{1}{3}$ of gaine $3\frac{2}{3}$. what $\frac{6}{8}$,			
		<u>68</u>	
		<u>256</u>	
		<u>192</u>	
	<u>2176</u>		
	<u>192</u>		
	<u>192</u>		

Thus appeareth the gaine for the firste
man $\frac{1}{3}$ Li. $\frac{6}{8}$, & for the seconde $\frac{1}{3}$ Pi. $\frac{6}{8}$.
The whiche two sommes together makynge
the lustre gaines, which is $3\frac{2}{3}$. pt. proueth the
worke true, or els not.

Note, that menne in Companie, hauyng
losse by Traffique vpon the Seas, or other-
wise, their severall portions to bee borne, is
founde by this Rule also, and so many parti-
culare menne as are in Companie, so many
severall Quotientes shall bee made, and all
together make the gaine or losse, euery man-

L. iij. nes

Rule of Company.

nes portion, accordyng to his stocke, whereof to give many examples were superfluous, but onely to shewe how to applie the Rule, whereof a fewe examples followe hereafter.

Three menne laded a ship, the aduenture of the first was 546.Li. of the second 628.Li. and of the thirde 732.Li. By tempest vpon the sea, the master was foised to caste ouer borde, to the value of 640.Li. Question, what portion of the losse euery manne ought to beare?

Aunsweare. The whole aduentures added together, make 1906.Li. soz firste number in proportion, and the losse 640.li. must bee the seconde number, and euery particular portion of the stocke the thirde number. The whiche multiplied and diuided, accordyng to the Rule, yeldeth three severall quotientes, shewyng the losse of euery manne, whiche for the firste is — 183.li. $\frac{546}{1906}$. for the seconde 210.li. $\frac{628}{1906}$, and soz the thirde 245.li. $\frac{732}{1906}$. And all added together make the iuste losse, whiche is 640.li.

It.

It.

If 1906 lib.	what	{ 546	fa.	{ 183.	li.
lose 640 lib.		{ 628	cis.	{ 210.	li.
		{ 732		{ 245.	li.

640.

Three

Three men in Companie gained 100. li.
 whereof for 32. lib. whiche the firste manne
 putte in, he had of the gaine 25. li. and of
 the rest the thirde manne had $\frac{1}{2}$, more then
 the seconde. Question, what the seconde and
 thirde patte into stocke? Aunswere. Firste,
 consider the 25. li. taken out of the gaine,
 there resse 75. li. for the seconde and third
 whereof the thirde muste haue 5. li. for 4. to
 the seconde. Wherefore adde 5. li. and 4. li.
 together, and that maketh 9. li. for firste
 number in the Rule of three, and saie, if 9. li.
 require 75. li. what 4 li. and for the seconde
 man you shall finde in gaine 32. li. 6. s. 8. d.
 and for the thirde 41. li. 13. s. 4. d. as the
 practice sheweth.

li.	li.	li.	li. s. d.
If 9.require 75.what	$\begin{cases} 4 \\ 5 \end{cases}$ fa-	$\begin{cases} 33 \\ 41 \end{cases}$	6. 8. 13. 4.

Then hauyng founde every mannes par-
 ticular parte of the gaine, you shall saie. If
 25. li of gaine come of 32. li. in stocke for
 the firste manne, whereof commeth 32. li.
 6. s. 8. d. for the seconde, and 41. li. 13. s. 4.
 for the thirde woorke, and you shall finde the

L.iiij. second

Rule of Company with tyme.

Seconde man put in 4.2. li. I 3.8.4. d. and the
third 5.3. li. 6.8. 8. d.

The rule of Companie

with tyme.

Hree Marchauntes in Companie,
the fyrste putte in 50. li, for fo-
wre Monthes; the second 65. li,
for seuen Monthes, and the third
72. li, for vyue Monthes, who gaigned 85
Question. What every mannes portion of
the gaing?

Here is to bee noted, that euery mannes
moncy muste bee multiplied, by his tyme of
continuance in the Companie, and the thre
productes added together, shall bee first num-
ber in the rule of thre, the gaine the seconde
and euery particulare producte the thirde
noumber, and so proceadynge the wo:ke,
you shall finde three severall quotientes shewynge
euery mannes parte of the gaine to

bpm

Rule of Company vppith tyme 68

hym due, accordyng to his stocke, and tyme
of continuaunce, as by example will appere.

1000	to shill 30
300	to p ^t 65
400	to a 7
<hr/>	<hr/>
200	455
	648
	455
	200
	<hr/>
	1303

Thus having found the thre severall produc-
tutes to be 1303, then you shall go to the
Rule and say,

lib.	{ 200 } If 1303. gain 8; what { 455 } { 648 }	{ 13. } 29. 42.
------	---	-----------------------

85

Here is to bee noted, that so many men as
are in company, so many severall products
must be made, and so many severall quotients
must manifest the gaine to euery one below-
gyng sc.

L.ijij. The

50

The Rule of *Aligation.*



THE Rule of Aligation requireth a certaine circumstance, for gathering of differences, of thynges of sondry p̄ices, wherof part may be better and parte worse then a common p̄ice, whereas a quantitie of euery sorte occasion may require to bee taken, and the saide differences added together, shalbe firste noumber in the Rule of thre. The whole quantitie of the matter desired the second, and euery particuler difference the thirde noumber, and so many severall quotients will make the Quantitie of the matter sought for. The effect more plainly appearing in fewe examples, then in many wordes or great discourse thereof, as hereafter you may see.

An Appotrary for recovery of health in a noble man is charged to compose an ingredience of 4 sondrie sortes of riche and callipy drugges, to say, of 45 s. 42 s. 36 s. and 32 s. the ounze, and to haue 8. ounzes worth 40 s. the ounze of euery sort a quantity. Question.

Now

How muche of euery sorte is to be taken?

Aunsweare. Firſte ſet downe the ſeuerall
priſes one vnder another, the highest upper-
moſt, with the common priſe at the leſte ſide
thus.

40	S	45
	}	42
	}	36
	}	32

Then you muſte linke together one aboue the common priſe with one of the other vnder the common priſe; and the difference of euery one aboue the common priſe ſhalbe ſet againſt the other, linked with it vnder the common priſe, and to the contrary, the difference of euery one vnder the common priſe ſhalbe ſet againſt the other, linked with it aboue the common priſe, the whiche diſferences ſound and ſet accordingly, as aboue appearing, the totall makynge 19. Then by the Rule of thre
is to be ſought the 4. Quotients, to make 8
dunzes of 40 s. the dunze of euery priſe a
quantitie, whiche is as by practice hereafter
apeyeth.

If 19. require 8. what 8

$$\begin{array}{r|rr} 8 & 3(7) \\ \hline 64 & 64 \\ & 64 \end{array}$$

L.v.

If

Rule of Aligation.

If 19. require 8. what 4.

	2(3)
8	3 2 1 $\frac{1}{3}$
3 2	X 9

If 19. require 8. what 2

8	16 0 $\frac{1}{2}$
16	19

If 19. require 8. what 5

8	4 0 2 $\frac{2}{3}$
4 0	X 9

Here you may perceiue, that the said Apotrary ought to take of 4 5 s. 3 ounzes $\frac{1}{3}$, of 4 2 s. 1 ounze $\frac{1}{3}$, of 3 6 s. $\frac{16}{19}$ of an ounze, and of 3 2 s. 2 ounzes $\frac{2}{3}$, the which together maketh 8 ounzes of 4 0 s. the ounze, thereofe ffect by the question required.

Here is to be noted, that although the former quantities be truely brought forthe, as the question requireth, the same notwithstanding, the same quantities maye shewe like trueth, if the differences chaunge their places, as by linkyng the uppermost price with the lowest sauyng one, and the lowest with the

the uppermost sauyng one thus.

$\left\{ \begin{array}{l} 45 \\ 42 \\ 36 \\ 32 \end{array} \right\}$	4	If I 9. re ^v { 4 } -2. $\frac{13}{19}$
40	8	quire 8. what { 8 } -3. $\frac{7}{19}$
	5	{ 5 } -2. $\frac{2}{19}$
	2	{ 2 } -0. $\frac{16}{19}$
	16	8. 0 $\bar{3}$

A Marchant hath bought Canuas of 22 d. 19 d. 15 d. 10 d. 9 d. and 8 d. the Ell. A frende requireth to haue a thousande elles (of euery sort a parcell) to stand hym in 12 d. the ell one with an other, the Marchant to graue nathing by him, but to haue gauen him a Satten Doublet for his frendship & Question. How muche of euery sort to bee taken. Neither partie to haue wrong. Answer. Firste finde the differences by former order thus.

$\left\{ \begin{array}{l} 22 \\ 19 \\ 15 \\ 10 \\ 9 \\ 8 \end{array} \right\}$	4	The whiche being found procede in the Rule of three, & so you shall haue 6 Quotientes, whiche shewe the quantite of e- uery sort of Canuas, to be taken as practise will shew.
	29	If

Rule of Aligation.

	Ells.
4 —	137.
3 —	103.
2 —	68.
3 —	103.
7 —	241.
<u>10 —</u>	<u>344.</u>
	1000.

A Marchaunt hath 4 sortes of Golde, of seuerall finenes (to saye) of 23 Carratz, of 22 Carratz, of 21 Carratz, and of 20. Carratz. fine Question, what quantitie of every sort is to be taken, to haue 100. ounces of 22 Carratz fine iust. Aunsweare.

First note, that soasmuche, as the Fracti-
ons, fine aboue, and vnder the common fine-
nes, are of sondry Denominations: therfore
they must be reduced, and made of one Deno-
mination, and will stand thus.

$22 \left\{ \begin{array}{l} 22 \cdot \frac{2}{12} \\ 22 \cdot \frac{3}{12} \\ 21 \cdot \frac{1}{12} \\ 20 \cdot \frac{6}{12} \end{array} \right.$	<u>18</u>
	2
	8
	21

49

Here you may per-
ceiue, that the finer
sorts aboue the com-
mon finenes $\frac{21}{12}$ and
 $\frac{3}{12}$ are sett against
the parcells linked
with theym, whiche are vnder the common
goodnes,

goodnes, and for the common sinnes therof
2. is set against the percell, linked therewith
Also 20 Carrat $\frac{1}{2}$. is set against the parcell
linked therewith, and so is found $\frac{1}{2}$ for firste
number in the Rule of thre $\frac{1}{2}$, and euery par-
ticular difference, the thirde number with
the 100. onze desired the second, with which
numbers procedyng in the Rule of thre $\frac{1}{2}$
you shall finde 4 quotient whiche will declare
the quantite of euery sorte of Gold, to be ta-
ken to haue 100. onces of 22 carrat $\frac{1}{2}$ fine
is the effect in example appearing.

If 4.9 require 100. what	18	36. onz.	16.
	2	4.	16.
	8	16.	32.
	21	42.	49.
			100. onces.

An Assaie master hath ffe sortes of siluer
of sondrie finesse: that is to saie, of 11.onzes
14. d. 11.bnzes 10. d. 10. bnzes. 5. d. 9.
bnzes 16.d. and 9.bnzes. 12.d. waight fine,
and woulde haue 100.lib. weight of 11.bn-
zes 2.d. fine. Question. What quauitie to be
taken of euery sorte? Aunswere.

Firste reduce your severall denominatiōs
into

Rule of Aligation.

into one, and then it will stande thus.

234	30	The which diſ-
230	26	ſferences found
205	26	procede with þ
196	11	totalle for the
192	12	firſte noumber,
<hr/>	105	the 100.lib.the

ſecond: and euer
y particular the third, and ſo shall you haue
the Quociente of every ſorte to bee taken, to
make 100.lib. weight of I.I. wuzes 2.d.
ſine, the effecte in example appearing.

	lib.
30	28. ⁶⁰ ₁₀₅
26	24. ⁸⁰ ₁₀₅
26	24. ⁸⁰ ₁₀₅
I I	10. ⁵⁰ ₁₀₅
I 2	I I. ⁴⁵ ₁₀₅
	<hr/>
	100

Howbeeit that theſe woorkes are to bee
pronoued by the common order, of pronouyng the
Rule of thre: The ſame notwithstanding,
there are other ſonderie orders of prooues,
for the commixtions of Galdes and Siluer's
whiche

whiche he te I omittē, in respecte of severall causes, referryng suche as by vocation, maie desirre knowledge therein; to priuate conference, who maie bee satisfied to effecte extra-ordinarie.

The rule of one false position.

HE Rules of false Positions are so called, not that any vntruthe are furthered, or caught by the same, but that by a noumber supposed, though farre from truche. The same pucte in use of the Rule, byngech soorthe the truche, whiche of consequence is expected and desired, as by example the effecte maie appear.

A Marchaunt taketh a house, wherevpon dependeth suche perely benefice, that he disburses a somme of money, not named. A frende requestyng to haue the bargaine, the Marchaunt is content to take 10 by £. for his money, and at the ende of seuen yeres the tyme of his vse therof, receiueth of his frende 606.lib. of money, for that he had disbursed and the intreste of the principall. The question is, what portion of money the Marchante

dis-

Rule of Position.

disbursed for the saide house. Aunswere.

I am not shamed to say that I have not yet

The firste number in the Rule of thre, for aunswere of this muste bee furthered by supposition, the whiche for example, take 300 li. supposed to bee the money firste disbursed, then of consequence, the intereste thereof seuen yeres, beyng 210 lib. ioyned therewith is to bee made the seconde noumber in the woork.

Then to procede, saie if 510 lib. princi-
pall and gaine come of 300. pounde, where-
of commeth 600. pounde, wooanke and finde
352. pounde. $\frac{6}{7}$.

If 500. come of 300. whereof 600:
of 352. $\frac{6}{7}$.

Here note, that what nomber or somme of money soever bee taken for the supposition as firste noumber, and the same with the intereste thereof made the seconde. The 600.li. bee yng thirde in the woork, byngeth the truthe to light: as by another example above the truthe supposed maye appear.

Suppose the marchaunt paied at the first

400.

400. pounde for the aforesaid house, the i-
ntrest therof is 10. li. by C. for seuen yeres, is
280. pounde, whiche putte to the principall
maketh 680. pounde, and is 80. pounde
more then shold bee, if the supposition were
true, wherefore saie in former order.

If 680. li. come of 400. li. whereof
commeth 600. wo^rke saith as before of
252. pounde $\frac{1}{7} \frac{6}{7}$.

The rule of ij. false positions.

When any question is framed, founde
of suche difficultie, as maie require
the practise of twoo false positions:
you shall suppose any nomber at pleasure for
the first position, and by consequēce of worke
wil appeare an errour either vnder or aboue
the truthe, the which beyng aboue, shail be no-
ted with this character +, signifying more, &
beyng vnder the truthe, shal haue this note —,
whiche signifieth lesse. And euen so make a
seconde position, to bryng foorth the a secounde
errour with the like noces.

Then you shall multiply the firſte positi-

M.j. on,

The Rule of two.

on, by the seconde error, and the seconde position with the firste error, and if the signes of the errors bee like, to saie bothe more, or bothe lesse then the truth, then shall you substracie the lesser producte from the greater. Also you shall substracie the lesser error from the greater, and with the remaine thereof you shall diuide the remaine of the substraction of twoo productes: and the quotiente of that diuision, will shewe the true Nounber sought for.

Howbeeit you shall note, that when the twoo errors haue signes unlike, as the one to muche, and the other to little, then you shall adde the twoo productes together, and diuide the totall by the somme made, by ad-
dying the twoo errors together, and the Quociente will shewe the truthe sought for also, as more plainly maye appeare by applying the vse of the Rule, to the answere of some questions followyng.

Three Marchauntes gaines I 000, lib.
wherof the severall portions are unknowne
sauyng that the seconde ought to haue dou-
ble the portion of the first, and 5. pound more
The third ought to haue double the portion
of

of the seconde, and 10. li. more.

The question is, what portion of the saide gaine belongeth to euery man. Aunswere.

You maie suppose any Number at pleasure, as aforesaid, the whiche for example shall bee 150 li. supposed to bee the firste mannes due. Then the double thereof with 5. pounde more is 305. pounde for the seconde. The double whereof with 10. pound more is 620. pounde for the thirde, and the three portions together make 1075. li. wherein is founde an error of 75. pounde to muche: wherefore for a seconde wo:ke, I suppose the first mannes portion to be 144. pounde: then the second ought to haue 293. pounde, and the thirde 596. pounde, whiche together make 1033. pounde, wherein is founde an error of 33. pounde to muche also. Wherefore I set

the first position	150	150 + 75
with the error 75.		" "
at the vpper ende of a		
Crosse, with the signe		
to muche + thus, and		
the seconde position		144 + 33
144. with the error	720	450
33. at the nether ende	1008	450
	10800	4950

The rule of truwo

of the Crosse, with the signe to muche +, also as appeareth.

Then the firste position 1 5 0. multiplied by the seconde errorr 3 3. produceth 4 9 5 0. also the seconde position 1 4 4. multiplied by the firste errorr 7 5. produceth 1 0 8 0 0. And because the signes of the errorrs bee like, as bothe to muche I substracie the lesser producte 4 9 5 0. from the greater 1 0 8 0 0 and there remaineth 5 8 5 0. for diuidende. Likewise I substracie the lesser errorr from the greater 7 5. and the remaine is 4 2. for divisor. Then diuidyng 5 8 5 0. by 4 2. the Quotiente is 1 3 9 li. $\frac{2}{7}$. whiche is the true portion for the firste manne, then the seconde of consequence hath 2 8 3. li. $\frac{4}{7}$: and the third 5 7 7. li. $\frac{1}{7}$. and together make 1 0 0 0. li. the effecte sought for by the worke.

Now to the ende that the errorrs maie bee bothe to little, as in the firste worke thei were bothe to muche, I will further an other supposition to shewe the agremente.

Suppose the firste mannes portion to bee 1 3 0. li. the double thereof and 5. li. more is 2 6 5. li. for the second, the double thereof and 1 0. li. more is 5 4 0. li. for the third, & maketh together 9 3 5. li. wherein is founde the first errorr

error to bee 65. pounde to little.—, and set at the vpper ende of the crosse, with the signe in former order.

Againe suppose a biggar somme to bee his portion, as 135 pound. Then the seconde muste haue 275. pounde: and the third 560. pound, and maketh together 970. pound, wherein is found an error of 30. pound, —.to little also. Wherefore I sette the position with the error at the foote of the crosse as you see with the signe.—.to little.

Then the firste position 130. multiplied by the seconde error 30. yeldeth in product 3900. Likewise multiplying the seconde position 135. by the firste error 65. the producte is 8775. And because the signes of the errors are bothe to little, I substracie the lesser producte 3900. from the greater 8775. and the remaine is 4875. for diuidende: also I substracie the lesser error 30. from the greater 65. and the remaine is 35. for diuidende, Then diuidyng 4875.

M.iij. by

The Rule of tvuoo

by 3 5. the Quotiente is 13 9. Pi. $\frac{2}{7}$. as in the former woorke , and the portions of seconde and third followe of consequence, as before.

The twoo former workes with contrary positions shewe one truthe, brought foorth by one order , for that the errorrs in eche worke was like, though in the firste bothe to muche, and in the latter bothe to little : And now resteth the maner of woozke , when the errorrs haue signes unlike , as the one to much, & the other to little, where the productes and errorrs will require addition , as to the country before substraccion ; the effecte appearing in a thirde worke, wherein the positions made so farre vnder , and aboue the truthe, that the rule maie satisfie euery mannes expectations , in bryngyng foorth the truthe, notwithstanding the distaunce of the suppositionis from the same.

Suppose the first mannes portion of gain in the former question to bee 3. pounde; then the seconde hauyng 5. pounde moare then the double thereof , hath 11. pounde . And the third manne 10. pounde moare then the double of the seconde,hath 32. pounde, and maketh together 46. pounde, whiche is 954. pounde

pounde to little for the firste errorr, set with
the position at the heade of a crosse in former
order, with the signe.—to little.

Then to haue the se-
cond positio knowne. 30.—954
Suppose the said first
mannes portion to bee 
500 pound, then con-
sequence alloweth to 500.—2525
the seconde 1005. li. 2500
and to the third 2020. 4500
pounde, whiche toge- 477000 7575
ther maketh 3525.

pound, wherein is founde an errorr of 2525
pounde to muche, the whiche with the signe
and position, I sette at the nether ende of the
crosse as you see, and for that the signes bee
vnlike, as the one to little, and the other to
greate. You muste adde the twoo productes
together for the diuidende, and the twoo er-
rors for the divisor: and for your better vn-
derstanding, note these fewe wordes in verse.

The signes bothe like, substractiō will haue:
And contrary found, addition doeth craue

Of gaine and losse

The which Addition made of the two produc-
ttes, the totall is 4 8 4 5 7 5. to bee diuided by the totall of the twoo errorrs, whiche
is 3 4 7 9. The quotient thereof is 1 3 9. $\frac{9}{3} \frac{9}{4} \frac{4}{7} \frac{9}{9}$ agreyng with the twoo former exam-
ples, the effecte required in euery worke.

Thus hauyng passed through the commo-
partes of Arithemetique, in whole and bro-
ken numbers, applying the same to the Ru-
les of proportion, ordinarie to bee founde in
moste authours. Now followeth other rules
requiryng further circumstaunce then in
Schooles (I meane in Uniuersities been
taught) to saie of gaine and losse vpon the
hundreth, of Barters, and of Exchaunge for
sondrye nations.

Of gaine and losse by the C.

AMarchaunte hath 100. Clothes,
whiche coste 425.lib. he desireth to
knowe how to sell every Clothe to
gaine 8.li. vpon the hundredth. To aunswere
this question and suche like, you must vse this
circumstaunce, saying, by the Rule of thre
directe.

If 100.lib. doe gaine 8.li. what gaineth
425.lib.

425.li.paid for the foreymed 100. Clo-
thes : worke by the foresaied Rule, and finde
34.li.gained, as practise will shewe.

If 100.li.gaine 8.li.what 425.

8

34.00

3400 | 34 lib.gained.

100

And hauyng founde the gaine, adde there-
to the principall, whiche the Clothes coste,
and you shall haue 459.lib. the value of the
saied Clothes, sold after the rate of 8. pound
gained vpon the C.li.

Then to finde the price of euery Clothe,
after the rate iusté, you shall haie 1.00.

If 100. Clothes solde, yelde 459.lib.
principall and gaine, what one Clothe, mul-
tiplie and diuide, and you shall finde 4.pound
1 l.s.9.d. $\frac{1}{3}$: euery clothe as practise sheweth.

If 100.yelde 459.li.what one

I

459

P.v.

459

Of gaine and losse

459 | 4 lib. 159.
XOO

Likewise if one peece of Clothe containing 8 4. yarde, coste 60. pound: how ought the yarde to bee solde to gaine 1 0. li. by C. Aunswere in former order saiyng, if 100. li. gaine 1 0. li. what 60. li. worke by the rule of three, you shall finde 6. pounde. Then saie again if 8 4. yarde yelde 6 6. pound in principall and gaine, what one, worke accordingly, and you shall finde 1 5. s. 8. d. $\frac{1}{2} \frac{3}{4}$. euery yarde.

Clothes 60. costyng 53. pounde, howe maie 1 2. peeces thereof bee solde to gaine 9. li. by C. Aunswere former order, saiyng:

If 100. li. gaine 9. li. what getteth 53. pounde: worke and fide—47. li. 1 4. s. the whiche gaine with the principall maketh 577. li. 1 4. s. the whiche founde, saie again,

If 60. Clothes sold, yelde in principall and gaine 577. li. 1 4. s. what 1 2? worke by the rule, and finde 1 1 5. li. 1 0. s. 9. d. $\frac{3}{7}$. and so muche ought 1 2. Clothes to bee sold to gaine 9. li. by C.

If

If a pece of Velvet coste euery yarde 18 shillynges, howe maie the yarde bee solde againe, to profite 9. li. by £:

Saie if 100. li. gaine 10. li. what 18. s? woorke and finde 1. s. 9. d. $\frac{1}{2}$. whiche makes for euery yarde to bee 19. s. 9. d. $\frac{1}{2}$. to gaine after 10. li. by £.

If in sale of 100. yardes of Satten for 48. li. there bee gained 3. li. 10. s. I de-maunde what coste euery yarde the firste penie. Aunswere. Rebate the gaine 3. pounde 10. s. from the totall 48. li. and the princi-pall will appeare 44. pounde 10. shillynges wherefore saie:

If 100. yardes coste firste penie 44. li. 10. shillynges, what one yarde, woorke by rule, and finde 8. s. 10. d. $\frac{1}{2}$.

200. ounces of Golde taken in a shifte for 645. li. and solde againe to losse 10. li. in the hundred. I demaunde what is losse in euery ounze: Aunswere, saie if 100. lose 10 pounde, what 145. li? woorke by rule, and finde 64. li. 10. s. then saie gaine. If 200. ounzes, lose 64. li. 10. s. what one ounze, woorke and finde 6. s. 5. $\frac{1}{2}$.

If

Of gaine and losse.

If the pounde of Saffron, whiche coste
18.s. bee solde againe for 18.s.6.d. I de-
maunde what is losse by the hundred pounde
in money? A answere. If 18.s. lose 6.d. what
100.pounde, woʒke by rule, and finde 2.li.
15.s.6.d.in the C.

If 100.yardes of Damaske coste 65.li.
and the buier repentyng, would lose 5.li. in
the hundred of money. I demaunde how the
yarde maie bee solde, his losse to bee neither
more nor leſſe then after the rate aforesaid,
of 5. by hundred. A answere by rule and saie.

If 100.li. lose 5.li. what 65.li. woʒke
and finde 3.li.5.s. the whiche rebated from
the principall 65.li. rest 61.li.15.s.

Lastly say, if 100.yardes yelde 61.li.15.
s. what 1.yarde, woʒke and finde 12.s.4.d.
 $\frac{1}{5}$ euery yarde.

Of



To Marchaunts willing to chaunge their Marchaundize together, the one hauyng Cartsies of 35. s. the peice ready Money will deliuer them in Barter at 40. s. the peice. The other hauyng Holland clothe worth 2. s. 6. d. the Ell ready money, would know how to put away an ell to make the Barter equall.

To Aunswere herein, and by like order all other, say by Rule, if 35.s. for a Cartsey, make in barter 40. what will 2. s. 6. d. for an ell of Hollande yelde in Barter, worke and you shall finde 2. s. 10. d.¹⁰ the ell to equall the Barter.

A Marchaunt hath 100. Clothes to sell for ready money at 14 li. a peice, and in barter hee will put them away at 15. li. 10. s. every clothe, an other will giue for them in Barter, silkes that are worth 9 li. a peice ready money. I demaunde at what price the silkes are to be deliuered in barter, & how many peeces paith for the clothes, neither partie to haue aduaantage of other. Aunswere by former order and say.

If 14 li. for a Clothe ready Money yelde
15.li.

The Rule of Barteryng.

15. li. 10.s. in Barter, what giueth 9.li. for
a peice of Silke in Barter, to make the
trucke equall, woorke and finde 9.li. 19.s.
3.d. $\frac{1}{7}$, the price of a pecce of Silke.

Then say, if 9.li. 19.s. 3.d. $\frac{1}{7}$, require 1.
peice of silke : how many pieces of Silke is
bought with 1550 li. whiche is the value of
the 100. pieces of clothes in Trucke, woorke
by the Rule of 3. direct, and you shall finde
that, 155. pieces, and $\frac{1023}{1674}$, at the former
price paient for the 100. Clothes, and nei-
ther party hauyng aduaantage of the other.

Two Marchauntes desirous to chaunge
their Marchaundize together. The one ha-
uyng Allam, worthe 25.s. by C. ready Mo-
ney, and will put it awoy for 30.s. by C. in
Trucke, to take Pepper at 3.s. 4.d. the lib.
whiche is worthe but 3.s. the lib. The Pe-
pper Marchaunte not of skill to equall the
chaunge, giueth Pepper for 100. Quintals
of the Allam at the prises aforesaide. I de-
maund what aduaantage the one hath of the
other, and who is the losar, : Aunswere.

First seeke at what price a lib. of Pepper
maketh the Barter equall saiyng. If 25.s.
make

make 30. s. in Allam what 3. s. for Pepper,
woorke and you shall finde 3. s. 7. d. wherby
appeareth 3. d. $\frac{1}{3}$ less in every lib. of Pepper
deliuered.

Then to finde the state of the chaunge, say
by the Rule of 3. If 3. s. 4. d. by 1. lib. of
Pepper what bieth 150. li. the value of the
100. Quincalls of Allam, woorke and you
shall finde 900.lib. of Pepper paieith for the
said Allam.

Againe to finde the losse, searche what
quantitie of Pepper would haue paid for the
Allam, if the Barter had bene equall, saying.
If 3. s. 7. d. $\frac{1}{3}$ requireth 1. lib. of Pepper,
what 150.lib. the value of the Allam: woorke
and you shall finde 83 3. lib. $\frac{1}{3}$ woulde haue
paid for the Allam, the Barter made equall.
The which 83 3. lib. waight $\frac{1}{3}$ rebated from
900.lib. deliuered y rest, los is 66.li. waight
 $\frac{2}{3}$, and so much gained the Allam of the Pep-
per. The effect sought for by the woorke.

Here you shall understande, that if the one
partie require to haue a portion in ready Mo-
ney, as $\frac{1}{2}$. $\frac{1}{3}$. $\frac{1}{4}$. or any other, you shall rebate
the said such portion what it bee, aswell from
the

The Rule of Barterynge.

the price of his Ware worth in ready Money, also rated in Barter, and the 2. remaines shalbe the first and seconde noumbers in the Rule of three, and the thirde shalbe the price of the Ware of the contrary partie, as hereafter by example the effect may appeare.

Two Marchauntes wyllyng to chaunge Marchandise, the one with the other, the firste hath Dyles of 24. li. by Tunne, redy money, and in Barter he will put it away at 27. li. by Tunne, and will haue $\frac{1}{3}$ in readie money. The other hath Bayes of 2. s. 6. d. the yarde ready mony. I demaunde how the yarde of Bayes ought to bee rated, to make the Barter equall: Aunsware. First rebace 9. li. whiche $\frac{1}{3}$ of 27. li. from 24. li. the rest is 15. li. for first number in the Rule of thre, also rebate the same 9. li. from 27. li. the value of the Dyle in Barter, and the rest is 18. li. for second number in the said rule, and the third number shalbe 2. s. 6. d. to finde howe the yarde of Bayes shalbe deliuered in Barter, the which to finde, say, if 15. li. yelde 18. li. a Tunne of Dyle, what 2. s. 6. d. for a yarde of Bayes, wooke and you shall finde 3. s. for euery yard of Bayes in Barter, and so

so of all other.

Twoo Marchauntes will chaunge Mar-
chaundizes, the one hath wines of 13.li.6.s.
8.d. redy Money by Tunne, and in barter he
will put them awaie at 16.li.13.s.4.d. by
Tunne, and also will haue $\frac{1}{4}$ money content.
The other hath Tynne at 3.li. the C. in bar-
ter. I demaunde what the C. of Tynne is
woorthe ready money. Answere. Take the one
fourth parte of the price of a Tunne of wine
in Barter, which is 4.li.3.s.4.d. from the
price of a Tunne readie money, which is 13.
li.6.s.8.d. so resteth 9.li.3.s.4.d. for
conde number in the Rule of 3.

Likewise take the said 4.li.3.s.4.d. from
the price of the Wine in Barter, and the rest
wilbe 12.li.10.s. for first number in the said
Rule. Lastly, put the price of the C. of Tynne
the thirde number, whiche is 3.li. in Bar-
ter, and woorke the Rule, and you shall finde
44.s. the value of the C. of Tynne readie
Money.

Twoo Marchauntes will chaunge their
Marchaundizes the one with the other, one
hath Cottons of 10.li. the Packe ready mo-

N.J. ney,

Of Exchaunge.

ney, and will put theim awaie in Barter, at 13.li.6.s.8.d. the Packe, and will gaine 10.li. by C. and also haue the halfe in ready money. The other hath Burrace of 6.d. the li. ready money. I demaunde how the li. of of Burrace shall be put away in Barter. Awwere. First say, if 100.li. giue 10.li. what giueth 13.li.6.s.8.d. the price of a Packe of Cottons in Barter: Woxke by the rule, and you shall finde 14.li. 13.s.4.d. whereof the one halfe demaunded in ready money, rebated from 10.li. price of the Cottons ready money, the rest is 2.li.13.s.4.d. for firste number in the Rule of three, and the same also rebated from 14.li. 13.4.d. price of the Cottons in Barter, the rest is 7.li.6.s.8.d. for second number, then make the 6.d. price of Burrace the thirde number, and woxke by the Rule, and you shall finde 16.d. $\frac{1}{2}$ for the lib. of Burrace in Barter.

Of the exchaunge of Moneys from one country to an other.



As much as by the Lawes and statutes, of euery or most nations it is defended to transporthe or carry out Gold and Siluer either in coine or Bullion, therefore

therefore was diuised and ordained the ex-
chaunge of moneys betwene country & coun-
try, that is to say. For a somme of money, the
value great or small, in one nation deliuered
from one man to an other. The said deliuera-
to receiue the value therof in money of an o-
ther contry wherwith to furnish his affaires
for traffique or otherwise, in that place, the
effect by examples more plainly apearyng.

A Marchaunt deliuerech in London 100.
li. starling to receiue in Andwarp at sight of
the bills made for exchaunge therof, for eue-
ry li. starlyng 24. s. 9. d. Flemmishe. I de-
maunde what money Flemmishe paiceth the
bills in Andwarp. Aunswere. Say, if 20.s.
starlyng, bee worth 24. s. 9. d. Flemmishe,
what 100.li. starling, worke by the Rule of
3. direct and finde 123.li. 15.s. Flemish
paiceth the bills of the said 100. starlyng.

A Marchaunt deliuerech in Andwarp 100 li.
Flemmishe, to receiue in London 20.s. star-
lyng for 24. s. 9.d. Flemmishe, I demaund.
what starling money paiceth the Bills for the
saide 100 li. Flemmishe. Aunswere and sayc

If 24. s. 9. d. Flemish, giue 20.s. star-
liyng,

Of Exchaunge.

Iyng, what 100. li. Flemmishe, multiply
and diuide, and you shall finde 80. li. 16. s.
1. d. $\frac{4}{13}$, and so muche starling money paiech
the said bills of 100.li. Flemmishe.

A Marchaunt Deliuereþ in london 100.
li. starlyng, to receiue in Parris 50. s. Turno
is for euery Frenche Crowne of 5.s.3.d.
starlyng. To saye, valued at that price. I de
maund how much Turnois or Frenche mo
ney paiech the bills for the saide 100.li. star
lyng. Aunswere. Say by the Rule of 3. If
5. s. 3. d. starlyng, make 1. Crowne, what
100.li. multiply & diuide, and you shall finde
3 80. \triangleright and $\frac{6}{13}$ parte of a Crowne, and note
that the Caracter \triangleright representeth the crown
by exchaunge, and is euer 50.s. Turnois or
Frenche money. Then say againe, if 1. \triangleright be
worth 50 s. what 380. $\frac{6}{13} \triangleright$ woorke by the
Rule, and finde 952 li. or franks 7. sowece,
and 7. d. $\frac{4}{13}$ paiech the Billes for the saide
100. li. starlyng.

A Marchaunt deliuereþ in Parris 1000.
li. or franks, the whiche franke or li. is 20.
sounce or pounde Turnois Frenche money
to Receiue in London 4. s. 10. d. starlyng
for

for euery \triangleright of 50. souce Turnois. I demaund how muche starlyng money paieith the billes of exchaunge for the said 1000. li. Turnois. Aunswere. Saye first, if 50. souce Turnois make 1 \triangleright howe manye Crownes maketh 1000 li. wo \check{r} ke by the Rule & finde 400. \triangleright .

Then say againe, if 1. \triangleright giue 4. s. 10. d. starlyng, what 400. \triangleright . wo \check{r} ke accordingly, and finde 96 li. 13.s.4. d. starlyng, paieith the Billes of exchaunge for the saide 1000. li. Turnops.

A Marchaunt deliuерeth in London 100. li. starlyng, to receiue in Bayon for euery 5. s. 10. d. 1. ducket of 374. Maruedies: I de-
maunde how manie Maruedies paieith the billes for y \check{p} said 100. li. starling. Aunswere.

Say first, if 5. s. 10. d. make 1. Ducket,
what 100. li. multiplic and diuide, and you
shall finde 342. Duckets. ;.

Then say againe, if 1. Ducket giue 374.
Maruedies, what giueth 342. Duckets $\frac{1}{7}$.
wo \check{r} ke accordingly, and finde 128228.
Maruedies $\frac{1}{7}$.

A Marchaunt deliuерeth in Bayon 100.
R.iiij. M.

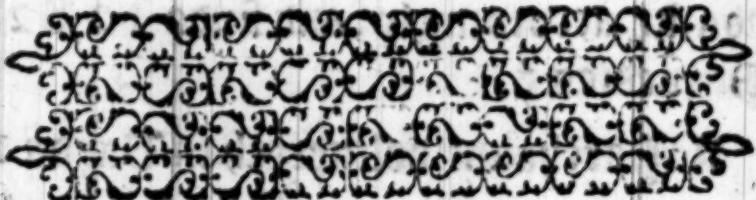
Breefe Rules.

M. Maruedies, to receiue in London 5. s.
10. d. for euery Ducket of 3 7 4. Maruedies: I demaunde how muche Starlyng mo-
ney paieith the billes of Exchaunge for the
saied 100. M. Maruedies. Aunswere. Say
if 3 7 4. Maruedies make one Ducket, what
100. M. wo:ke bythe Rule, and finde 2 6 7.
Duckettes. $\frac{1}{3} \frac{3}{7} \frac{1}{4}$.

Then saie againe. If one Ducket giue
5.s. 10.d. Starlyng, what giueth 2 6 7.
Duckettes $\frac{1}{3} \frac{3}{7} \frac{1}{4}$. woo:ke and finde 7 8. lib.
2.s. 7.d. $\frac{3}{7} \frac{6}{7}$. And so muche paieith the Bil-
les of Exchaunge for the saied 100. M.
Maruedies. &c.

Thus hauyng runne ouer the feuerall
common partes of Arithmetique, as well in
whole as broken Noumbers, now followeth
the Rules of Brieuetie, of rare and profita-
ble effecte, the originall cause of furtherance
of this my woo:ke.

The



The fowerth and last part
*containyng the Rules of Bre-
 uetie, of rare and singular effect.*

SHe Rules of Breuetie in wor-
 kes of Arithmetique, are son-
 drie and many, and to further a
 woanke, wherein to shewe all
 that might bee expected, would
 not onely be a tedious and superfluous toile,
 but also cunnyng might wante in the beste
 learned the same to performe. Wherefore I
 minde not to enlarge my trauaile with such
 Rules, as menne are ordinarily acquainted
 withall, neither so muche to saie of other,
 (which maie seeme moze rare, and not in fa-
 miliaritie with many menne) as might bee
 furthered to good and profitable purpose.
 Notwithstandyng as euery manne desireth
 the nearest waie to ende a wearie iourney: so
 I intende to shewe practise first, how to gine
 thee some of any nomber, whereof the value
 of an vnicie, is an euuen parte of a pounde,
 with as small circumstaunce and fewe figu-
 res as maie be, therein, auoydyng the tedi-
 ouis.

Breefe Rules.

ous vse of figures in Multiplication, and Division, commonly practized in the Rule of thre. And againe, as many menne in respecte of Benefite, or to withstande a detrimente, maie contente theim selues to take a compasse out of the nearest waie, to stoppe a breache in a hedge of a Corne fielde, or to see his pasture boyde of other mennes Cattell: so I thinke it bothe profitable and necessary, to further a more large walke by sondrie orders, in searching þ totall of sondry sommes, whereof the value of an unitie, may be either some euyn parte of a pounde, or sondrie euyn, or odde partes of a pounde. From one penie to twentie shillynges, and so muche aboue as maie seeme needfull, the effect not so hard to understande in wordes, as with facilitie to bee perceiued in example, whiche hereafter followe in plentifull maner, and so full of chaunge as procured cause, wherfore this Booke is named the stowchouse of Breuetie.

It is good for euery learner to printe in memorie the euyn partes of a pounde of money, before he meddle with the breefe rules. The whiche partes are put in the table folowyng.

D.	L.	D.	L.
1.—	$\frac{1}{240}$	20.	$\frac{1}{12} \text{ of } \frac{1}{2} \text{ of } \frac{1}{3}, 02 \frac{1}{4} \text{ of } \frac{1}{7}$
2.—	$\frac{1}{120}$	2.s.	$\frac{1}{10}$
3.—	$\frac{1}{60}$	3.s.4.D.	$\frac{1}{6}$
4.—	$\frac{1}{30}$	4.s.	$\frac{1}{3}$
6.—	$\frac{1}{40}$	5.s.	$\frac{1}{4}$
8. Take	$\frac{1}{30}$ At	6.s.take	$\frac{1}{1}$
10.—	$\frac{1}{24}$	10.s.	$\frac{1}{2}$
12.—	$\frac{1}{18}$	13.s.4.D	$\frac{2}{3}$
15.—	$\frac{1}{12}$	15.s.	$\frac{3}{4}$
16	$\frac{1}{8}$	16.s.8.D.	$\frac{1}{6}$

N.b.

When

The
price of
an uni-
tie.

Breefe Rules.

Vhen occasion doth procure anie noumber to bee summed, whereof the vnicie beareth any euene parte of a pounde. Then the saide noumber beyng diuided by the Denominator of suche parte as is the value of the said vnitie, the quotient of that diuision wilbe the totall, sought for of any suche noumber, as by example the effect more plainly may appeare.

At 4. s. the yarde, what 2 I 5 6. yardeſ?
Aunſwere.

Forasmuche as 4. s. is the $\frac{1}{5}$ of a pounde, therfore if the noumber of yardeſ beeyng 2 I 5 6. bee diuided by 5. the Denominator of $\frac{1}{5}$ li. which is 4. s. the price of euery vnitie in the said noumber, the quotient wilbe 43 I. 4. s. the true totall required as practise will manifest.

$$\begin{array}{r} 4 \quad (1 \quad \text{lb.} \\ 2 \quad 1 \quad 5 \quad 6 \quad | \quad 4 \quad 3 \quad 1 \\ 5 \quad 5 \quad 5 \end{array}$$

Thus Diuision hath brought forth the totall of 2 I 5 6. yardeſ at 4. s. the yarde, the effect whereof I further not as a woorke of breuety, though in some respects in deed it is a breuety, but rather for an exaſple therby the better

better to vnderstande the maner of abreviation of woorke in that example , and in all other like, by practising the same , and like diuision receinyng in memory the diuisor , and remaine of euery such Diuision, and settynge the totall in one line vnder the number giuen, as by an other example of perfect brevite, the effect may appere.

At 4.s. the yard what 2 I 56. yards. Take
Makes 43 I. 14.s.

Here I haue kept in memory the Diuisor.
5. the Denominator of $\frac{1}{5}$ li. whiche is 40s.
the value of euerie unitie in the number giuen for example , and haue founde that the same is contained in 2 I. 4. tymes, and 1 re-
mainyng. Wherefore I set 4. vnder 2 I. and
a line betwene . Then I finde also that the said diuisor 5. is contained in 1 5. 3 eymes,
and nothyng remaineth , wherefore I set 3.
vnder 15. as the former . Then lassly I finde
that 5. the Diuisor is contained in 6. the last
figure 1 time, and one remainyng. wherefore
I set one vnder line as the other , and the one
remainyng beyng $\frac{1}{5}$ of a pounde for the same
I put 4. s. also in the Quotient , and so the
woorke

Breefe Rules.

woरke is ended with the vse of as fewe signes set downe, as can be; whiche is the effectment by this last part, as in sondry examples followyng you may perceiue.

At I. d. what 5 4 3 6 8. elles. Aunswere.
Soasmuch as I. d. is the $\frac{1}{240}$ part of a pound, therefore, if this giuen number bee diuided by the denominator 240. the quotient would be the poundes, containing the value of the said giuen number, as aforesaid, howbeit, for that I pretende the omittynge vse of the figures, as well in Multiplication as Diuision. I therefore imagine what cuen parte of a pounde I may worke by. Whereof a peny beyng a perfite parte, may be taken from it, and so my desire furnished. The whiche fydynge to be sondrie, as g. d. the $\frac{1}{10}$ parte whereof $\frac{1}{8}$ parte serueth, and 6. d. $\frac{1}{20}$ parte whereof $\frac{1}{8}$ parte serueth. Also 4. d. $\frac{1}{60}$ parte whereof $\frac{1}{8}$ parte serueth, the whiche last to mee seemynge most apt, I further for example as foloweth.

At I. d. what — 5 4 3 6 8. ells. Take $\frac{1}{8}$ of $\frac{1}{60}$.

for 4. d. — 9 0 6. 2. 8. d.

wherof $\frac{1}{8}$ facit 2 2 6. 1 0. 8. d.

As I know that 4. d. is $\frac{1}{20}$ part of a pound,
so $\frac{1}{20}$ part of the given number, is the pounds
containingng the value sought for at 4. d. the
elt, howbeit, for that 1. d. is the value admit-
ted for euery vnicie, and is $\frac{1}{4}$ of 4. d. therfore
 $\frac{1}{4}$ of the quotient yelded for 4. d. is the totall
sought for, whiche as aboue appeareth is
2 2 6 li. 10. s. 8. d. founde without vse of
moe figures set downe, then aboue appeareth

And note that the Divisor being 60. the
Cipher is imagined to stand vnder 8 the last
Figure of the dividend, so that 6. dividing all
the other Figures, yeldeth 906. li. and $\frac{1}{4}$ re-
mainyng whiche is 2. s. 8. d. as also aboue
you may see, whereof $\frac{1}{4}$ is the totall sought
for, as aforesaid.

At 2. d. what 4 5 8 2 foote Take $\frac{1}{4}$ of $\frac{1}{20}$.

for 4. d.— 76 l. 7. 4. d.

Wherof $\frac{1}{4}$ facit. 3 80. 1 3. 8. d.

This Division is made in former order,
and the truelch shewed accordingly.

At

At 3 d. pounde waight what 4 3 5 6. li.

facit—54.li.9.s.O.D.

9-0-1001-A-101-100105-311104-01501

At 4 p.m. what — 3986. Take $\frac{1}{2}$.

reficit 66 82 8 2000

~~Jan. 1-30 1935 \$3.00~~

At 6.d. what 3 2 4 5. Take $\frac{1}{45}$.

facit—81.2.6.

such an old man as he is now is not possible to imagine

At 8.d. what—2678. Take

Facit — 8. 9. 5. 8. 4. 9.

54 7107

At 10.0 what - 2576. Tab

4-2-968

1066

whereof $\frac{1}{2}$ facit — 107.5.8.

g

At 12.d. what — 2432. Take $\frac{1}{20}$.

facit — 121.12.s.0.0.

At 15.d. what — 2354.

Take $\frac{1}{16}$ of $\frac{1}{2}$ of $\frac{1}{2}$.

For $\frac{1}{8}$ — 294. 5.0.

whereof $\frac{1}{2}$ facit — 147 li. 2.6.0.

At 16.d. what — 2216. Bushelles.

Take $\frac{1}{15}$ of $\frac{1}{20}$ and $\frac{1}{2}$ thereof,

For $\frac{1}{20}$ — 110. 16.5.0.

For $\frac{1}{2}$ thereof — 36. 18s. 8.

facit — 147.14.8.0.

At 20.what — 1864. Take $\frac{1}{2}$ of $\frac{1}{2}$.

For $\frac{1}{2}$ — 310. 13.4.

Whereof $\frac{1}{2}$ facit 155. 6. 8.

Breefe Rules.

At 2. shillynges, what I 56 8. Take $\frac{1}{10}$
 facit I 56 L. I 60. 0.

At 2 s. 6 d. what I 4 53. Take $\frac{1}{10}$
 facit I 8 I. I 2. 8. 6. 0.

At 3 s. 4 d. what I 2 6 3. Take $\frac{1}{10}$
 facit 2 I 0 li. I 0. 8. 0. 0.

At 4. shillynges, what I 1 4 4. Take $\frac{1}{10}$
 facit 2 2 8. li. I 6. 0. 0.

At 5 s. what I 1 2 3. Take $\frac{1}{10}$
 facit 2 8 0. I 5 8. 0. 0.

At 6 s. 8. what I 0 4 2. Take $\frac{1}{10}$
 facit 3 4 7. 6. 8. 0.

If you marke the former practizes, you maie perceiue that in euery example, where in the price of an unitie in the giuen number is contained in a diger, or an article number, belyng either of shillynge s or pence. The totall of that example is shewed in one line done, without use of mo figures, then in the same line doeth appeare: Howbeit, where the value of the unitie is contained, in a mixed or compounde number, then is required two lines, thre lines, fower or more, as the sondrie partes in the example maie p[ro]cure. For sometymes the totall is giuen by one euene parte, and that requireth but one line. Sometymes by a parte of a parte, and that requireth two lines, the one substrained from the other: Sometymes by euene and sonderne partes, and partes of partes also, whiche wil require so many lines, as the sondrie partes will procure. As in example followyng, the effecte mo[re] at large appearyng.

At 1 d. the yarde, what 2 4 5 6 8 yarde[s]:
Take $\frac{1}{4}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{4}$. or $\frac{1}{6}$ of $\frac{1}{3}$ or $\frac{1}{3}$ of $\frac{1}{6}$, or $\frac{1}{12}$ of $\frac{1}{12}$, or $\frac{1}{12}$ of $\frac{1}{12}$.

By euery of whiche directions, the true totall is brought to the, as by the generall

O. i. practizes

Breefe Rules.

practizes maie appeare.

The giuen number. 2 4 5 6 8. at I.d. the parde.

For $\frac{1}{5}$ 4 0 9. 9. 4.

Whereof $\frac{1}{4}$ facit 102. 7. 4.

Also the giuen number. 2 4 5 6 8. at I.d. the

parde. For $\frac{1}{5}$ 3 0 7. 2. 2.

Whereof $\frac{1}{4}$ facit 102. 7. 4.

Likewise the giuen number 2 4 5 4 6. at I.d.

the parde. For $\frac{1}{5}$ 6. 1 4. 4. 0. 0.

Whereof $\frac{1}{4}$ facit 102. 7. 4.

Againe the giuen number 2 4 5 6 8. at I.d.

the parde. For $\frac{1}{5}$ 8. 4 8. 8. 0.

Whereof $\frac{1}{4}$ facit 102. 7. 4. 0.

Accordanly

Accordingly the giue[n] nōber 2 4 5 6 8 at I.d

the parde. For the same. 1 2 2 3.8.s.o.d

Whereof facit 1 0 2. 7. 4.

Also the giuen[n] number, 2 4 5 6 8. at I.d. the

parde. For 2 4 5 6. 1 6 s.o.d.

For thereof. 4 0 9. 9. 4.

Whereof facit 1 0 2. 7. 4.

Againe the giuen[n] nomber 2 4 5 6 8. at I.d.

the parde. For 3 0 7 1.

For thereof. 6 1 4.4.s.o.d.

Whereof facit 1 0 2. 7. 4.

As necessitie requireth, not suche plentie

of examples for one chyng, so delectacion in

a desirous studente, maie accepte the good

D.ij. will

Breefe Rules.

will of the trauailer herein. And nevethelleſſe, for that euery order is witnesſe of truth one in an other, none of the ſame are without profit, for ſuche as are exercized in accouſtes. And in reſpecte as well thereof, as alſo to adorne the pearleſſe Sciente (Mathemati- call) of Arithemetique, with the Jewelles of her owne closet: here after followeth ſome other examples of the ſame matter.

At 1. d. the yarde, what. 2 4 5 8 6. yardeſ.

Take $\frac{1}{4}$ of $\frac{1}{2}$ of $\frac{1}{3}$ for $\frac{1}{6}$ 4094. 13. 4. d.

For $\frac{1}{10}$ thereof 409. 9. 4. d.

Whereof $\frac{1}{2}$ facie 102. 7. 4. d.

Also at 1 d. the yarde, what. 2 4 5 6 8. yardeſ.

Take $\frac{1}{3}$ of $\frac{1}{2}$ of $\frac{1}{3}$ for $\frac{1}{12}$ 4913. 12. 0.

For $\frac{1}{4}$ thereof 1228. 8. 0.

Whereof $\frac{1}{15}$ facie 102. 7. 4.

Also

Also at l.d. the yarde what. 2 4 5 6 8 yardeſ.

Take $\frac{1}{4}$ of; of; of $\frac{1}{2}$.

The giuen nober. 2 4 5 6 8. 8) 0 2 4 8

For $\frac{1}{4}$ of. 6 1 4 2. b.

For $\frac{1}{2}$ thereof 1 2 2 8. 8. s. o. d.

For $\frac{1}{4}$ thereof 4 0 9. 9. s. i. d.

Altherof facis 1 0 2 9 7. 0. 4. d.

Thus appeareth that by 10. sondrie orders of breuette, without the vſe of the rules of 3. is brought forth the totall of 2 4 5 6 8. yardeſ at l. d. the yarde, and because it may appeare to the ſight of euerie man, what diſference of circumstaunce is betwene any of the ſaid orders, and the ſaide Rule of 3. here followeth the practice of the ſame by the ſaid Rule.

At l. d. the yarde what 1 4 5 6 8. yards.

Because it doth not increase or aggrument in Multiplication, I omitt the ſaide multiplication, and diuid the giuen noumber by ſo many pence as is in a pound contained, which

D. iii. is

Breefe Rules.

18240.etc.

x(8) II. T(4) v
 2456(8. | 192 888 [7.5.4.0.9
 2444(0. 10 x x 50
 22

At 2.0. the ell what. 2.3 6 47 ell\$.

Take for most breefe $\frac{1}{2}$ of $\frac{1}{10}$ OZ of $\frac{1}{5}$ OZ of
 $\frac{1}{4}$ OZ $\frac{1}{3}$ of $\frac{1}{30}$ OZ $\frac{1}{2}$ of $\frac{1}{20}$ OZ $\frac{1}{3}$ of $\frac{1}{6}$ of $\frac{1}{10}$ OZ $\frac{1}{5}$ of $\frac{1}{2}$ of $\frac{1}{8}$
OZ $\frac{1}{2}$ of $\frac{1}{3}$ of $\frac{1}{4}$ of $\frac{1}{5}$.

The given number, 313647, is odd.

१८ अप्रैल १९४३ दिन का वार्ता संग्रह ४५५

Whereof $\frac{1}{2}$ facit. 197. 1*g.* 2*d.*

certitude of circumscribing a point more than one-half of a degree from the center.

And only for yroafe $\frac{1}{2}$ of $\frac{1}{2}$ of $\frac{1}{2}$. jnntold

The giuen number. 2 3647.

For 394 I. 3.S, 4.D.
MAY 8 1984

39315 for $\frac{1}{2}$ thereof 394.2.004.5

Whereof I facit. 197. I. 2. 111

At

At 3. d. lib. whaighe what 4 8 7 5. lib.

Take for most b̄eſe $\frac{1}{8}$.

The giuen number. 4 8 7 5.

facit.

60 li. 18 s. 9. d.

And for prooſe Take $\frac{1}{2}$ of $\frac{1}{4}$ or $\frac{1}{4}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{4}$,
 $\frac{1}{2}$ of $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{4}$ of $\frac{1}{4}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{2}$, and $\frac{1}{2}$ thereof,
 $\frac{1}{2}$ of $\frac{1}{2}$ of $\frac{1}{2}$, &c.

Euerie of whiche facit 31 p. 8. lli. 7. s. 9. d.

At 4. d. what. 4 5 7. Take for most b̄eſe $\frac{1}{10}$.

facit

76. li. 5. s. 4. d.

And for prooſe. Take $\frac{1}{2}$ of $\frac{1}{4}$ or $\frac{1}{4}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{4}$
 $\frac{1}{2}$ of $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{4}$ of $\frac{1}{4}$ of $\frac{1}{2}$, &c.

Euerie of whiche facit 76 li. 5. s. 4. d.

At 5. d. what. 4 2 6 9. Take for
 b̄eſe $\frac{1}{10}$ and $\frac{1}{2}$ thereof.

For $\frac{1}{10}$

71. 3. s. 0. d.

For $\frac{1}{2}$ thereof

17. 1. 5. 9. d.

Whiche together facit 88. 4. 8. 9. d. And
 D. iiiij.

Breefe Rules.

And for prooфе Take $\frac{1}{2}$ lacking $\frac{1}{2}$ thereof
as by example.

At 5. d. what. 4269.

for $\frac{1}{2}$ 106.14.6.

From whiche $\frac{1}{2}$ 17.15.9.

per rest facit 88.18.9.

Or for the same prooфе Take $\frac{1}{2}$ and $\frac{1}{2}$ of $\frac{1}{2}$ or
 $\frac{1}{4}$ of $\frac{1}{2}$ of $\frac{1}{4}$ or $\frac{1}{4}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{2}$ lacking $\frac{1}{2}$ thereof.

Every of whiche facit 88 pi. 18 s. 9 d.

At 6. d. what 3896. Take for most bœf $\frac{1}{2}$.

facit 97.8.9.

And for prooфе and pleasure Take $\frac{1}{2}$ and $\frac{1}{2}$
thereof, or $\frac{1}{2}$ double, or $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{2}$ of
 $\frac{1}{2}$ or $\frac{1}{2}$ of $\frac{1}{2}$ of $\frac{1}{2}$.

Every of whiche facit 97. pi. 8.

At 7. d. what 3648. li.

Take for bœf $\frac{1}{2}$ and $\frac{1}{2}$ thereof

The

The giuen number is 3648. What 7 d.

For $\frac{1}{4}$ 91. 4. 8. 0.

For $\frac{1}{2}$ thereof 15. 4. 0.

whiche together facit 106. 8. 0.

And for prooife. Take $\frac{1}{2}$ lacking $\frac{1}{4}$ thereof, or
 $\frac{1}{2}$ and $\frac{1}{2}$, or $\frac{1}{2}$ of $\frac{1}{2}$ and $\frac{1}{2}$ thereof, or $\frac{1}{4}$ of $\frac{1}{2}$ and $\frac{1}{2}$
 thereof, or $\frac{1}{2}$ double lacking $\frac{1}{4}$ of $\frac{1}{2}$.
 Every of whiche waies facit 106 Pi. 0. d.

At 8 d. what 3579. Take for moste breef,
 facit 119. 6. 0.

And for prooife. Take $\frac{1}{2}$ double or $\frac{1}{4}$ and $\frac{1}{2}$
 thereof, or $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{4}$ of $\frac{1}{2}$. &c.

Every of whiche waies facit 119. 6. 0.

At 9. d. what 3648. Take $\frac{1}{4}$ and $\frac{1}{2}$ thereof.

For $\frac{1}{4}$ thereof 91. 4. 8. 0. d.
For $\frac{1}{2}$ thereof 45. 12. 0.

Facit 136. 16. 8. 0.

D. v. And

Breefe Rules.

And for the proofoe. Take $\frac{1}{2}$ and $\frac{1}{2}$ thereof
of, or $\frac{1}{4}$ of $\frac{1}{2}$, or $\frac{1}{8}$ double, and $\frac{1}{4}$ of $\frac{1}{8}$, or $\frac{1}{16}$
treble, or $\frac{1}{8}$ of $\frac{1}{2}$ and $\frac{1}{2}$ thereof, &c.

Every of whiche waies facit I. 3. 6. li. 16 s.

At 10 d. what — 2 97 3.

Take $\frac{1}{2}$ of $\frac{1}{2}$ for moste breefe.

The givuen number — 2 97 3.

For $\frac{1}{2}$ — 4 9 15 s. 1. 0. 0.

Whercof $\frac{1}{4}$ facit — 1 2 3. 1 7 s. 6.

And for proofoe. Take $\frac{1}{2}$ of $\frac{1}{4}$ of $\frac{1}{2}$, or $\frac{1}{8}$ of
 $\frac{1}{2}$, or $\frac{1}{3}$ and $\frac{1}{4}$ thereof, or $\frac{1}{8}$ and $\frac{1}{16}$, or $\frac{1}{16}$
and $\frac{1}{2}$ thereof, and $\frac{1}{4}$ thereof, or $\frac{1}{8}$ treble,
and $\frac{1}{8}$ of $\frac{1}{2}$.

Every of whiche waies facit I. 3. 6. li. 16 s.

At r. f. d. the bushell what — 2 6 8 4.

Take $\frac{1}{2}$ lacke $\frac{1}{2}$ thereof

The givuen number — 2 6 8 4. at 1 l. d.

For $\frac{1}{2}$ — 1 3 4. l. 4 s. 0. d.

From whiche — 1 1. 1 3. 8. d.

Reste facit — 1 2 3. 0. 4. d.

Ans

And for proofe. Take $\frac{1}{4}$ and $\frac{1}{2}$ as in ex^ple.

At I 2 d. what — 2 6 8 4.

$\frac{1}{4}$ of 2 6 8 4 — 6 8 4
 $\frac{1}{2}$ of 2 6 8 4 — 8 9 9 4
 $\frac{1}{4}$ of 8 9 9 4 — 3 3 1 1.

Together facit I 2 3 4 1 1 1

Or for the same proofe. Take $\frac{1}{4}$ of $\frac{1}{2}$ and $\frac{1}{2}$ thereof, or $\frac{1}{8}$ and $\frac{1}{4}$ and $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{16}$, and the $\frac{1}{2}$ thereof, and $\frac{1}{4}$ thereof; or $\frac{1}{16}$ and $\frac{1}{4}$ thereof and $\frac{1}{2}$ thereof.

Euery of whiche orders facit I 2 0 P. s. 4. d

At I 2 d. what — 2 6 8. Take for mo^te

breefe $\frac{1}{2}$ facit — I 2 8. 8. 0.

For proofe at I 2 d. what 2 5 6 8. Take $\frac{1}{4}$ of $\frac{1}{2}$

$\frac{1}{4}$ of $\frac{1}{2}$ — 6 4 2.

Whereof $\frac{1}{2}$ facit — I 2 8. 8. 0.

Whiche is sufficiente, for suche as will
ue dñly the nearest wate: howbeit suche

as

Breefe Rules.

as vpon pleasure will range abvoade. Take
for the same proofof $\frac{1}{2}$ of $\frac{1}{10}$, or $\frac{1}{5}$, and $\frac{1}{2}$ thereof,
or $\frac{1}{4}$ double.

Every of whiche facit — I 2. 8. 1. 8. 8. 0. 0.

At I 3. 0. what 2 3 5 7. Take $\frac{1}{2}$ and $\frac{1}{2}$ therof.

For $\frac{1}{2}$, I 1 7. I 7. 0.

X 9. X 2. X 0.

For $\frac{1}{2}$ therof 9. I 6. 5.

Whiche facit I 2 7. I 3. 5.

Here because $\frac{1}{2}$ to bee taken from $\frac{1}{10}$, re-
quireth some difficultie. Therefore $\frac{1}{2}$ is firste
taken, whereof $\frac{1}{2}$ serueth, and the $\frac{1}{2}$ canstied
and the reste added, maketh the totall.

And for proofof at I 3. 0. what — 2 3 5 7.
Take $\frac{1}{2}$ and $\frac{1}{2}$ therof, and $\frac{1}{4}$ therof.

The giuen nomber — 2 3 5 7. at I 3. 0.

For $\frac{1}{2}$ — 7 8. 1. 1. 8. 4. 0.

For $\frac{1}{2}$ therof — 3 9. 5. 8.

For $\frac{1}{4}$ therof — 9. 1 6. 5.

Whiche together facit I 2 7. I 3. 5.

Or for the same yrofse Take $\frac{1}{2}$ double, and
 $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{2}$ creble, and $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{2}$ quadruple,
and $\frac{1}{2}$ of $\frac{1}{2}$ &c. I and soe to the end
Every of whiche facit 127.l. 13.s. 5.d.

At 14 d. what 192*s*. Take $\frac{1}{2}$ of $\frac{1}{2}$
and $\frac{1}{2}$ thereof.

For $\frac{1}{2}$ thereof 303*s*. 5.l. 4.s. 0.d.

For $\frac{1}{2}$ thereof 9*s*. 6.d.

For $\frac{1}{2}$ thereof 16. 1. 0

facit 112. 7. 0

And for yrofse at 14. d. what 192*s*.

Take $\frac{1}{2}$ of $\frac{1}{2}$ and $\frac{1}{2}$ thereof

The giuen nobet at 14.d. 192*s*.

For $\frac{1}{2}$ 192. 12. 0

For $\frac{1}{2}$ thereof 9*s*. 6. 0

For $\frac{1}{2}$ thereof 16. 1. 0

facit 112. 7. 0

Or for the same yrofse Take $\frac{1}{2}$ and $\frac{1}{2}$ thereof

for

Breefe Rules.

for thosse viiiij. take $\frac{1}{2}$ and $\frac{1}{4}$ of $\frac{1}{2}$ treble,
and $\frac{1}{2}$ of alþer $\frac{1}{2}$. One side $\frac{1}{2}$. $\frac{1}{2}$ $\frac{1}{2}$
Euery of whiche facit I I 2. 7. 8. 0.

At 15. d. what 1884.
Take $\frac{1}{2}$ and $\frac{1}{2}$ thereof

~~for $\frac{1}{20}$~~ 94. 4. 5. 0. 0.
~~for $\frac{1}{4}$ thereof~~ 23. 11. 0.

facit 117. 15. 0.

And for ympefe at 15 d. what. I 884.
Take of $\frac{1}{3}$

Whereof $\frac{1}{3}$ facit I. 17. L 5.00.

Dy for the same yroofe Take $\frac{1}{4}$ of $\frac{1}{5}$ and $\frac{1}{2}$
thereof, or $\frac{1}{2}$ of $\frac{1}{10}$ and $\frac{1}{2}$ thereof, or $\frac{1}{40}$ double
and $\frac{1}{2}$ of $\frac{1}{20}$, or $\frac{1}{30}$ and $\frac{1}{2}$ thereof. &c.
Every of which facit I I 7. P. I 5 S. O D.

65-11 - 217

At 16.0. what — 1468.

Take for brefe as and i therof. The

The gien number am 16. d. 468 taking $\frac{1}{2}$

of it. For $\frac{1}{2}$ — 73. 8. 0 d.

For $\frac{1}{3}$ thereof — 24. 9. 4

Or facit — 97. 17. 4

And for proove at 16. d. what i 468.

Take $\frac{1}{2}$ of $\frac{1}{2}$

For $\frac{1}{2}$ — 489. 156. 8

For $\frac{1}{3}$ thereof — 97. 17. 4

Or for the same proove. Take $\frac{1}{2}$ of $\frac{1}{10}$ or $\frac{1}{20}$
and $\frac{1}{3}$ thereof or $\frac{1}{3}$ double, or $\frac{1}{4}$ double, and $\frac{1}{6}$
or $\frac{1}{10}$ quadruuple.

Every of whiche facit. — 97. 17. 4 d.

At 17. d. what — 1376.

Take $\frac{1}{2}$ and $\frac{1}{3}$ thereof, and $\frac{1}{4}$ thereof

The giuen number — 1376. at 17 d.

For $\frac{1}{2}$ — 68. 16. 0

For $\frac{1}{3}$ thereof — 22. 18. 8

For $\frac{1}{4}$ thereof — 5. 14. 7

facit — 97. 9. 0 3

And

Breefe Rules.

In p̄f p̄ofe at 17.0. what i 376.

Take $\frac{1}{4}$ of $\frac{1}{2}$ and $\frac{1}{8}$, and $\frac{1}{4}$ thercof.

The given number — I 376. at I 7.0.

For $\frac{1}{4}$ —	275. 4.0
For $\frac{1}{4}$ thereof —	68. 16.
For $\frac{1}{8}$ —	22. 18.8
For $\frac{1}{4}$ thereof —	5. 14.7

Whiche together facit 97. — 9.3

Or for the same p̄ofe. Take $\frac{1}{2}$ of $\frac{1}{2}$ and $\frac{1}{3}$ thereof and $\frac{1}{2}$ therof or $\frac{1}{2}$ double and $\frac{1}{8}$ of $\frac{1}{2}$. Or $\frac{1}{2}$ add $\frac{1}{2}$ and $\frac{1}{8}$.

Every of whiche facit — 97 Pi. 9s. 3d.

At 18d. what — 1674.

Take $\frac{1}{4}$ of $\frac{1}{2}$ & $\frac{1}{2}$ therof.

For $\frac{1}{4}$ —	334 Pi. 16s.0d.
For $\frac{1}{4}$ thereof —	83. 14. 0
For $\frac{1}{2}$ thereof —	41. 17. 0
facit	125. 11. 0

And

And for prooife at 18 d. what i 674.

Take $\frac{1}{2}$ of $\frac{1}{2}$. and $\frac{1}{2}$ thereof.

The giuen noumber — — 1674. at 18d

For $\frac{1}{2}$	167.8. 0
For $\frac{1}{2}$ thereof —	83. 14.0
For $\frac{1}{2}$ thereof —	41. 17.0
facit	125. 11.0

Or for the same prooife. Take $\frac{1}{2}$ and $\frac{1}{2}$ thereof, or $\frac{1}{2}$ double, and $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{2}$ treble, & $\frac{1}{2}$, and $\frac{1}{2}$, and $\frac{1}{2}$. &c.

Every of whiche facit 125. 11.0

At 19 d. what — — 1735.

Take $\frac{1}{2}$. and $\frac{1}{2}$ therof and $\frac{1}{2}$ thereof

The giuen noumber — — 1735. at 19d.

For $\frac{1}{2}$	86. 15.0d.
For $\frac{1}{2}$ thereof	43. 7.6
For $\frac{1}{2}$ thereof —	7. 4.7.
facit	137. — 7. 1

22
Breefe Rules.

And for prooife at 19 d. — 1735.
Take $\frac{1}{2}$ double and $\frac{1}{2}$.

For $\frac{1}{30}$ — 57. 168 d.

Whereof the double — 115. 13.4

For $\frac{1}{60}$ — 21. 13.9

facit — 137. 7.1

Do for the same prooife. Take $\frac{1}{4}$ of $\frac{1}{2}$ and $\frac{1}{2}$ thereof, and $\frac{1}{6}$ thereof, or $\frac{1}{2}$ of $\frac{1}{12}$ and the $\frac{1}{2}$ thereof and the $\frac{1}{6}$ thereof. &c.

Every of whiche facit — 137 fl. 7 s. 1 d.

At 20 d. the peice, what 1876.

Take $\frac{1}{4}$ of $\frac{1}{2}$

For $\frac{1}{30}$ — 625. 6.8 d.

Whereof $\frac{1}{4}$ facit — 156. 6.8 d.

And for prooife 20 d. what 1876.

Take $\frac{1}{2}$ of $\frac{1}{6}$

For $\frac{1}{30}$ — 342. 13 s. 4 d.

Whereof $\frac{1}{2}$ facit — 156. 6.8.

D^r

Or for the same proefe. Take $\frac{1}{2}$ of $\frac{1}{4}$, or $\frac{1}{8}$
of $\frac{1}{3}$, or of $\frac{1}{5}$, or $\frac{1}{10}$, or $\frac{1}{15}$ and thercof and
thereof, double and &c.

Euery of whiche facit — I 56 Pi. 6 s. 8 d.

At 21 d. what — I 2 8 9.

Take $\frac{1}{2}$ of $\frac{1}{2}$ and $\frac{1}{4}$ of $\frac{1}{10}$.

For $\frac{1}{2}$ — I 2 4 Pi. 16 s. 8.

Whereof $\frac{1}{2}$ — I 0 7. 8. 4

For $\frac{1}{4}$ — I 2 r. 9. 8 d.

Whereof $\frac{1}{4}$ — 5. 7. 5

And the vndansfeld, facit — I 1 2. 1 5. 9

And for proefe at 21 d. what I 2 8 9.

Take $\frac{1}{2}$ and $\frac{1}{3}$ thercof and $\frac{1}{5}$ thereof.

The guuen number I 2 8 9. at 21 d.

For $\frac{1}{2}$ — 64. 9. 0 d.

For $\frac{1}{3}$ therof 32. 4. 6

For $\frac{1}{5}$ therof 16. 2. 3

which together facit I 1 2. 1 5. 9

For $\frac{1}{2}$ — 64. 9. 0 d.

For $\frac{1}{3}$

P.I.F.

D.

Breefe Rules.

Or for the same proofe. Take $\frac{1}{10}$ lacke ther
of, or $\frac{1}{5}$ and $\frac{1}{10}$ and $\frac{1}{2}$, and $\frac{1}{10}$, or $\frac{1}{4}$, treble & $\frac{1}{10}$,
Every of whiche facit — I 12. I 5. 9

At 2 2.d. The yarde, what I 578.

Take $\frac{1}{10}$ lacke $\frac{1}{2}$ of $\frac{1}{5}$.

The giuen nomber — I 578 at 2 2.d.

For $\frac{1}{10}$ ————— I 57. I 6. 8. O. D.

For $\frac{1}{5}$ ————— 26. 6. O.

For $\frac{1}{2}$ thereof ————— I 3. 3. O.

Whiche rest facit ————— I 44. I 3. O.

For proofe at 2 2.d. what I 578.

Take $\frac{1}{2}$ of $\frac{1}{5}$ and $\frac{1}{10}$ thereof.

The giuen nomber. ————— I 578.

For $\frac{1}{5}$ ————— 263. O.

For $\frac{1}{2}$ thereof. ————— I 3. 1. 1. O. O.

For $\frac{1}{10}$ thereof ————— I 3. 0. 3. O.

facit ————— I 44. I 3. O.

Or for the same proofe. Take $\frac{1}{5}$ and $\frac{1}{2}$
thereof,

thereof, and $\frac{1}{2}$ thererof, and $\frac{1}{3}$ thereof, or $\frac{1}{10}$ and
 $\frac{1}{20}$ and $\frac{1}{30}$, or $\frac{1}{40}$ double and $\frac{1}{40}$, or $\frac{1}{40}$ treble, and $\frac{1}{50}$.
 Every of whiche facit — I 4 4 l.. I 3 .S.O. D.

At 23.d. what I 627. Take $\frac{1}{10}$ lacke $\frac{1}{3}$ of $\frac{1}{10}$.

For $\frac{1}{10}$ — I 62. I 4. 0.

For $\frac{1}{3}$ — 20. 6. 9.

whereof $\frac{1}{3}$ 6. 15. 7.

Per restfacit — I 55. 18. 5.

For prooife at 23.d. what — I 627.
 Take $\frac{1}{2}$ of $\frac{1}{6}$ and $\frac{1}{8}$ of $\frac{1}{10}$.

The giuen number at 23.d. I 627.

For $\frac{1}{6}$ — x 7 x 3. 4.

For $\frac{1}{2}$ thercof — I 36. 11. 8.

For $\frac{1}{10}$ — x 62. x 4. 0.

For $\frac{1}{8}$ thercof — 20. 9. 6.

Whercof the vncanselled — I 55 18. 5.

Breefe Rules.

Or for the same prooife take $\frac{1}{2}$ and $\frac{1}{3}$ thereof and $\frac{1}{2}$ thereof, and $\frac{1}{3}$ thereof, or $\frac{1}{2}$ double, and $\frac{1}{6}$ and $\frac{1}{10}$, or $\frac{1}{20}$ and $\frac{1}{30}$ and $\frac{1}{30}$, or $\frac{1}{15}$, and $\frac{1}{4}$ and $\frac{1}{6}$ and $\frac{1}{4}$ thereof.

Euery of whiche facit — I 55 Pi. 1 8.s. 5.

At 2.s the elle what — I 2 4 3.

Take $\frac{1}{2}$ moste breefe.

The giuen number at 2.s. I 2 4 3..

— facit — I 2 4 6.8.O.D.

For prooife, at 2.s. what I 2 4 3. Take $\frac{1}{2}$ of $\frac{1}{3}$.

For $\frac{1}{3}$ 2 4 8. 4 2. 0.

Whereof $\frac{1}{2}$ facit I 2 4. 6. 0.

Or for the same prooife. Take $\frac{1}{2}$ double or $\frac{1}{3}$ treble, or $\frac{1}{4}$ quadruple, or $\frac{1}{6}$ sextuple, &c.

Euery of the whiche facit I 2 4. Pi. 6.D.O.D.

— At

— At

At

Breefe Rules.

99

At 2.s. and I.d. what — I 46 8.

Take $\frac{1}{2}$ and $\frac{1}{4}$ of $\frac{1}{6}$ thereof.

The giuen number — I 46. at 2.s. I.d.

For $\frac{1}{2}$ — I 46. I 6. s. o. d.

For $\frac{1}{4}$ thereof — 2 4. 9. 4.

For $\frac{1}{4}$ thereof — 6. 2. 4.

Whereof the uncaselled facit I 52.18. 4.d.

For pwoofe at 2.s. I.d. what I 46 8.

Take $\frac{1}{2}$ of $\frac{1}{2}$ and $\frac{1}{3}$ of $\frac{1}{3}$ thereof.

The giuen nūber at 2.s. I.d. I 46 8.

.8 .0 1 293.12.0.

.8 1 .7 2 1 146.16.0.

18. 7.0.

6. 2.4.0

I 52.18.4.

Or for the same pwoofe. Take $\frac{1}{3}$ treble
and $\frac{1}{3}$ of $\frac{1}{3}$, or $\frac{1}{4}$ quadruple and $\frac{1}{6}$ of $\frac{1}{4}$ &c.

At 3 s. 2 d. what — 12 4 8. elles.

Take 1 and $\frac{1}{6}$,

p.liij.

At

Breofe Rules.

At 3 s. 2 d. what —	I 2 4 8. cl'res.
for $\frac{1}{10}$ —	I 5 6.
for $\frac{1}{5}$ —	4 1. 1 2. 0
facit	I 9 7. 1 2. 0

And for proofe. Take $\frac{1}{10}$ and $\frac{1}{5}$ thereof, and
thereof as by example.

At 3 s. 2 d. what	I 2 4 8.
for $\frac{1}{10}$	I 2 4. 1 6.
for $\frac{1}{5}$ thereof	6 2. 8.
for $\frac{1}{10}$ thereof	1 0. 8.
facit	I 9 7. 1 2.

Or for the same proofe. Take $\frac{1}{2}$ lacking $\frac{1}{10}$
of $\frac{1}{10}$ or $\frac{1}{5}$ of $\frac{1}{10}$ lacke $\frac{1}{2}$ of $\frac{1}{10}$. &c.
Every of whiche facit I 9 7 Pi. 1 2 s. 0

At 4 s. 3 d. what	I 2 3 4.
Take $\frac{1}{2}$ and $\frac{1}{10}$.	
for $\frac{1}{2}$	2 4 6. 1 6 s. 0 d.
for $\frac{1}{10}$	1 5. 8. 6
facit	2 6 2. 4. 6 d.

for

For proofe at 4 s. 3 d. what I 2 3 4. Take $\frac{1}{2}$
double, and $\frac{1}{4}$ of $\frac{1}{2}$

for $\frac{1}{2}$ double	2 4 6. 1 6. 0
for $\frac{1}{4}$	0 6 4. 1 4. 0
for $\frac{1}{4}$ thereof	— 1 5. — 8. 0
facit	2 6 2. 4. 6

Or for the same proofe: Take $\frac{1}{2}$ & $\frac{1}{4}$ of $\frac{1}{10}$. &c.
And all makes 2 6 2 li. 4 s. 6 d.

At 5 s. 4 d. the ounce, what I I I I. ounce.
Take $\frac{1}{2}$ and $\frac{1}{4}$ of $\frac{1}{10}$.

for $\frac{1}{2}$	2 7 7. 1 5. 0
for $\frac{1}{4}$	1 8. 1 2. 0
—	1 8. 1 0. 4
Facit.	2 9 6. 5. 4

And for proofe, at 5 s 4. what I I I I.
Take $\frac{1}{2}$ and $\frac{1}{4}$.

I I	2 7 7. 1 5. 0
for $\frac{1}{4}$	1 8. 1 0. 4
—	2 9 6. 5. 4

Facit. 2 9 6. 5. 4

Breefe Rules.

Or for the same proose, $\frac{1}{4}$ and $\frac{1}{2}$ of $\frac{1}{5}$ or $\frac{1}{3}$ and $\frac{1}{2}$ of $\frac{1}{6}$ or $\frac{1}{5}$ and $\frac{1}{2}$ thereof, and $\frac{1}{3}$ thereof, and $\frac{1}{2}$ thereof.
Every of whiche facit — 296. li. 5. s. 4. d.

At 6. s. 5. d. — 123 l. Take $\frac{1}{2}$ and $\frac{1}{3}$ therof, and $\frac{1}{2}$ thereof and $\frac{1}{3}$ thereof.

For $\frac{1}{2}$ — 307. 15. 0

For $\frac{1}{3}$ thereof — 161. 11. 0

For $\frac{1}{2}$ thereof — 20. 10. 4

For $\frac{1}{3}$ thereof — 5. 2. 7

Whiche together facit 394. 18. 11

And for proose at 6. s. 5. d. what 123 l. Take $\frac{1}{2}$ add $\frac{1}{3}$ thereof and $\frac{1}{2}$ thereof and $\frac{1}{3}$ thereof.

The givuen number — 123 l. at 6. s. 5. d.

For $\frac{1}{2}$ — 246. 4. 0

For $\frac{1}{3}$ thereof — 123. 2. 0

For $\frac{1}{2}$ thereof — 20. 10. 4

For $\frac{1}{3}$ thereof — 5. 2. 7

facit — 394. 18. 11

Or for the same proose $\frac{1}{2}$ lacke $\frac{1}{5}$, or $\frac{1}{4}$ & $\frac{1}{3}$ ther-

of

of lacke $\frac{1}{8}$ o $\frac{1}{2}$; and thereof, and $\frac{1}{4}$ lacke thereof.

Euery of whiche facit 394 li. 18 s. 11 d.

0.0.500 5

At 7.s 6.d what 9857. pieces.
Take $\frac{1}{4}$ and $\frac{1}{2}$ thereof,

At 7.56.d.what— 130 130 867. pieces.

FF01 1/4 ————— 2466.150.0

For $\frac{1}{2}$ thereof 1233.7.6.

factit — 3700. 2. 6.

And for proofe at 7 s.6 what 9 8 6 7.

Take $\frac{1}{2}$ lacke $\frac{1}{4}$ thercof.

The given number at 7.6.0. 9867.

3502 1/2 — 4933.10.0.

From whence $\frac{1}{4}$ — 1 2 3 3. 7. 6.

Par reste facit — 3700. 2.6.

Or for the same purpose. Take $\frac{1}{3}$ and $\frac{1}{10}$
thereof, and $\frac{1}{4}$ therof or $\frac{1}{7}$ and $\frac{1}{2}$ thereof, and $\frac{1}{2}$
therof, and $\frac{1}{7}$ therof or $\frac{1}{5}$ double lacke $\frac{1}{8}$ of $\frac{1}{6}$.
Every of whiche facit — 3700. li. 2.s. 6.d.

001

Breſe Rules.

At 8.s.7.d. what — 8976.

Take $\frac{1}{3}$ and $\frac{1}{4}$ thereof, and $\frac{1}{10}$.

The giuen nōber at 8 s.7 d. 8976.

For $\frac{1}{3}$ —	2 9 9 2 . 0 . 0 .
For $\frac{1}{4}$ thereof —	7 4 8 .
For $\frac{1}{10}$ —	1 1 2 . 4 . 0 .

Whiche together facit — 3 8 5 2 . 4 . 0 .

And for p̄roofe, at 8.s.7.d. what 8976.

Take $\frac{1}{3}$ double, and $\frac{1}{4}$ of $\frac{1}{3}$, and $\frac{1}{10}$ thereof.

The giuen nōber at 8 s.7 d. 8976.

For $\frac{1}{3}$ —	1 7 9 5 . 4 . 0 .
Also for $\frac{1}{4}$ —	1 7 9 5 . 4 . 0 .
For $\frac{1}{3}$ thereof —	2 3 4 . 8 . 0 .
For $\frac{1}{10}$ thereof —	3 7 . 8 . 0 .

Whiche together facit — 3 8 5 2 . 4 . 0 .

Or for the same p̄roofe. Take $\frac{1}{4}$ and $\frac{1}{2}$ ther. of, and $\frac{1}{10}$ and $\frac{1}{2}$ thereof, or $\frac{1}{4}$ and $\frac{1}{10}$ and $\frac{1}{2}$ thereof, and $\frac{1}{2}$ thereof, and $\frac{1}{10}$ thereof.

Every of whiche facit — 3 8 5 2 li.4.s.0.d.

At

At 9.s.8.d.what — 8 5 7 2. Barrelles.

Take $\frac{1}{2}$ lacke $\frac{1}{2}$.

For $\frac{1}{2}$ — 4 2 8 6. 0. 0.

From whiche $\frac{1}{2}$ — 1 4 2. 1 7 8. 4. 0.

Reste facit — 4 1 4 3. 2. 8.

And for prooife. Take $\frac{1}{4}$ and $\frac{1}{4}$ thereof.

At 9.s.8.d.what — 8 5 7 2.

For $\frac{1}{4}$ — 2 1 4 3. 0. 0.

For $\frac{1}{4}$ — 1 7 1 4. 8. 0.

For $\frac{1}{4}$ thereof — 2 8 5. 1 4. 8.

Whiche together facit — 4 1 4 3. 2. 8.

Or for the same prooife. Take $\frac{1}{7}$ double
and $\frac{1}{7}$ of $\frac{1}{7}$, 0 $\frac{1}{7}$ and $\frac{1}{7}$ and $\frac{1}{7}$ double, and
 $\frac{1}{7}$ double.

Every of the whiche facit 4 1 4 3. li 2 s. 8. d.

At 10 s. 9. d. what 7 8 6 4. Take $\frac{1}{2}$ & $\frac{1}{4}$ & $\frac{1}{2}$
thereof. For — $\frac{1}{2}$ 3 9 3 2.

For $\frac{1}{4}$ — 1 9 6. 1 2. 0.

For $\frac{1}{2}$ thereof — 9 8. 6. 0.

Whiche facit 4 2 2 6. 1 8. s. 0.

50

And

Breefe Rules.

And for prouise Take $\frac{1}{4}$ double and $\frac{1}{10}$ and
 $\frac{1}{5}$ thereof, or $\frac{1}{5}$ double, and $\frac{1}{10}$ and $\frac{1}{2}$ thereof,
and $\frac{1}{5}$ thereof, or $\frac{1}{5}$ and $\frac{1}{10}$ treble.
Every of which facit 4226. I 8.

At 11s. 10d. what — 864. Hogsheades.
Take $\frac{1}{2}$ and $\frac{1}{2}$ of $\frac{1}{6}$, and $\frac{1}{10}$ thereof.
The given number — 864. At 11s. 10.

For $\frac{1}{2}$	432.
For $\frac{1}{5}$	144.
For $\frac{1}{10}$ thereof	72.
For $\frac{1}{6}$ thereof	7. 4. 8. 0. 0.

The which uncancelle is 511. 4. 0

For profit at 11s. 10d. what 864. hogshedds.
Take, and $\frac{1}{2}$ double and $\frac{1}{10}$.

For $\frac{1}{2}$	432. 0. 0
For $\frac{1}{5}$	28. 16. 0
For $\frac{1}{10}$ againe	28. 16. 0
For $\frac{1}{4}$	2. 1. 12. 0

Whiche together facit 511. 4. 0 0.

Or for the same pwoofe. Take $\frac{1}{2}$ and $\frac{1}{4}$ thereof, lacking $\frac{1}{12}$ thereof, or $\frac{1}{2}$ and $\frac{1}{10}$, and $\frac{1}{15}$ and $\frac{1}{4}$ thereof, or $\frac{1}{2}$ and $\frac{1}{10}$ and $\frac{1}{40}$ and $\frac{1}{60}$.

Every of whiche facit 5 I I. Pi. 4. S. O. D.

At 12. s. I I. d. what 7853. Take $\frac{1}{2}$ and $\frac{1}{10}$ and $\frac{1}{15}$ and $\frac{1}{60}$.

for $\frac{1}{2}$	3926. 10.0
for $\frac{1}{10}$	785. 6.0
for $\frac{1}{15}$	261. 15.4
for $\frac{1}{60}$	98. 3.3

Whiche together facit 507 I. I 4.7

For pwoofe at 12 s. 11 d. what 7854. Take $\frac{1}{2}$ and $\frac{1}{4}$ thereof and $\frac{1}{10}$ and $\frac{1}{4}$ thereof.

The giuen number 7853. at 12 s. 11 d

for $\frac{1}{2}$	3926. 10.0
for $\frac{1}{4}$ thereof	981. 12.6
for $\frac{1}{10}$	130. 17.8
for $\frac{1}{4}$ thereof	32. 14.5

Whiche together facit 507 I. I 4.7

Or for more pwoofe. Take $\frac{1}{2}$ and $\frac{1}{4}$ thereof, and

Breefe Rules.

and $\frac{1}{4}$ lacke $\frac{1}{2}$ therof, or $\frac{1}{4}$ & $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{4}$
 Every of whiche facit 507 l. vi. 14.7

At 13. s i. d. the quarter, what 593 8. Take,
 and $\frac{1}{4}$ & $\frac{1}{2}$ therof & $\frac{1}{2}$ thereof.

for $\frac{1}{2}$	196 9.
for $\frac{1}{10}$	593.16 8.0
for $\frac{1}{2}$ thereof.	296.18.0
for $\frac{1}{2}$ thereof	24.14.10

Whiche together facit 3884. 8.10

And for profe at 13 s. i d. what 593 8.

Take, and $\frac{1}{2}$ and $\frac{1}{6}$ and $\frac{1}{10}$.

for $\frac{1}{2}$	296 9.
for $\frac{1}{6}$	742.05.0
for $\frac{1}{10}$	98.19.4
for $\frac{1}{2}$	74. 4. 6

Whiche together facit 3884. 8.10

Or for more proufe. Take $\frac{1}{2}$ and $\frac{1}{6}$ lacking
 $\frac{1}{4}$ or $\frac{1}{4}$ and $\frac{1}{2}$ and $\frac{1}{6}$ and $\frac{1}{4}$ and $\frac{1}{2}$ therof, or $\frac{1}{2}$ and $\frac{1}{2}$
 and $\frac{1}{10}$ and $\frac{1}{2}$ thereof, a and $\frac{1}{2}$ therof.

Every of which facit 3884.l.8.5 10d.

At

At 16 s. 4 d. what — 253 I.

For $\frac{1}{2}$ — 1265. 10. 0.
For $\frac{1}{2}$ thereof — 632. 15. 0.
For $\frac{1}{6}$ thereof 126. 11. 0.
For $\frac{1}{3}$ thereof — 42. 3. 0.

Whiche together facit — 2066. 19. 8.

For prooфе at 16 s. 4. d. what 253 I.

Take $\frac{1}{2}$ and $\frac{1}{3}$ lacke $\frac{1}{6}$.

At 16 s. 4. what — 253 I.

For $\frac{1}{2}$ — 1265. 10. 0.
For $\frac{1}{3}$ — 843. 13. 4.
From whiche $\frac{1}{6}$ 42. 3. 8.

Per reste facit — 2066. 19. 8.

Or for more prooфе. Take $\frac{1}{3}$ double, and
 $\frac{1}{6}$ and $\frac{1}{10}$ thereof, or $\frac{1}{4}$ treble, and $\frac{1}{10}$ and $\frac{1}{6}$
thereof, or $\frac{1}{60}$.

Euery of whiche — 2066. 19. 8. d.

At 17 s. 5 d. what — 9856. yardes.

Take $\frac{1}{2}$ and $\frac{1}{3}$ thereof, and $\frac{1}{10}$ and $\frac{1}{6}$ thereof,

Q iij. and

401
Breefe Rules.

and $\frac{1}{4}$ thereof.

At 17.s.5.d.what — 9856. yardeſ.

for $\frac{1}{2}$ —	4928.	o. o. d.
for $\frac{1}{3}$ thereof —	3285.6.	8.
for $\frac{1}{10}$ —	985.	12. 0.
for $\frac{1}{6}$ thereof —	164.	5. 4.
for $\frac{1}{4}$ thereof —	41.	1. 4.

Whiche together is — 8582.18. 8.

For prooſe at 17 s.5.d.what 9856.
Take $\frac{1}{2}$ and $\frac{1}{3}$ and $\frac{1}{10}$, and $\frac{1}{6}$ thereof.

At 17.s.5.d what — 9856.

for $\frac{1}{2}$ —	4928.	
for $\frac{1}{3}$ —	3285.6.	8.
for $\frac{1}{10}$ —	246.8.	0.
for $\frac{1}{6}$ thereof. —	123.4.	0.

Whiche together facit — 8582.18. 8.

Or for the ſame prooſe. Take $\frac{1}{3}$ double, and $\frac{1}{5}$ and $\frac{1}{4}$ of $\frac{1}{60}$, or $\frac{1}{5}$ double and $\frac{1}{3}$ and $\frac{1}{8}$ and $\frac{1}{3}$ of $\frac{1}{40}$.

Euery of whiche facit — 8582.18. 8.

At

At 18. s. 6. d. what — 896.

Take the whole lacke $\frac{1}{10}$ and $\frac{1}{2}$ thereof.

At 18. s. 6. d. what — 896.

18. s. 6. d.

2. 2. 8

44. 16. 0.

22. 8. 0.

Per resse facit —

828. 16. 0.

For prooфе at 18. s. 6. d. what — 896.

Take $\frac{1}{2}$ and $\frac{1}{2}$ thereof, and $\frac{1}{2}$ thereof and $\frac{1}{2}$.

At 18. s. 6. d. — 896.

for $\frac{1}{2}$ — 448.

for $\frac{1}{2}$ thereof. — 224.

for — $\frac{1}{2}$ thereof 112.

for $\frac{1}{2}$ — 44. 16. 0.

Whiche together facit 828. 16. 0.

¶ for more prooфе Take $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$,
or $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ lacke $\frac{1}{2}$ thereof; or $\frac{1}{2}$ and $\frac{1}{2}$
and $\frac{1}{2}$, and $\frac{1}{4}$ and $\frac{1}{4}$, or $\frac{1}{2}$ and $\frac{1}{4}$ lacke $\frac{1}{2}$
of $\frac{1}{6}$.

Euery of whiche facit — 828. 16. 0.

¶ At

Breefe Rules.

At 19. s. 7. d. the pæce. what — 746.
 Take the whole lacking $\frac{1}{2}$ and $\frac{1}{4}$ thereof.
 At 19. s. 7. d. the pæce. what 746. From

whiche $\frac{1}{2}$	12. 8. 8.d.
and $\frac{1}{4}$ thereof	3. 2. 2
per rest facit	730. 9. 2.d.

For prooфе at 19. s. 7. d. what 746.

Take $\frac{1}{2}$ and $\frac{1}{4}$ & $\frac{1}{5}$ & $\frac{1}{6}$ and $\frac{1}{8}$.

for $\frac{1}{2}$	373. 0.0.
for $\frac{1}{4}$	186. 10.0.
for $\frac{1}{5}$	149. 4.0.
for $\frac{1}{6}$	12. 8. 8.
for $\frac{1}{8}$.9. 6.6.

Whiche together facit 730. 9. 2.

Or for more prooфе. Take $\frac{1}{2}$ and $\frac{1}{4}$ and $\frac{1}{5}$ and $\frac{1}{6}$ and $\frac{1}{8}$ thereof, or $\frac{1}{2}$ and $\frac{1}{3}$ and $\frac{1}{5}$ and $\frac{1}{6}$ thereof, and $\frac{1}{8}$ thereof, or $\frac{1}{2}$ and $\frac{1}{3}$ and $\frac{1}{4}$ and $\frac{1}{6}$ and $\frac{1}{8}$ thereof.

Every of whiche facit 730. 9. 2. d.

At 20. s. and 8. d. what 694.
 Take the whole and $\frac{1}{5}$

At

At 20 s. and 8. d. what 694.

for the whole	694.
for $\frac{1}{2}$ thereof	23. 2.7.
facit	717. 2.8.

For prooife. At 20.s. 8.d. what 694. Take
the whole and $\frac{1}{2}$ and $\frac{1}{3}$ therof

694.	
I7. 7	
5. I 5.8	
717. 2.8	

Thus miche may seeme sufficient for the
summyng of any number, whereof the price
of the vnitie is vnder 20.s. and when in any
number the price of the vnitie is 20. s. with
some parte of a pounde more, then the whole
giuen number is to be taken, and the partes
ouer and aboue the same to be taken and ad-
ded thereunto in former order. Whereof to
giue example, were superfluous, the effect
easie to understande, and appearing in the
last example. &c.

Q. iis. As

Breefe Rules.

As in the former examples, the p̄ice of an
unitie in euery giuen noumber beyng vnder
20 s. Diuision hath boene practized memo-
ratiuely, so in some other folowyng wherein
the p̄ice of an unitie beyng 40 s. or aboue,
shall Multiplication bee furthered, as neade
shall require, acco^ddyngly sometime alone, &
sometyme with the like Diuision also, where
the partes of a pounde the same may require,
as in examples mo^{re} at large you may per-
ceiue.

At 40. the p  ce, what 568. Carseis   
mo   tively by 2 and take the product.

At 4 o.s. the piece what 568. Carseig.

1136.

At 41. 8. 8. What is 546? By 2 divide
take $\frac{1}{2}$ of 8 to be added with the product.
At 41. 8. 8. What is 546? By 2 divide
take $\frac{1}{2}$ of 8 to be added with the product.
The product is 10924. now
divide by 2. Now 10924 divided by 2 is 5462
therefore. Wherefore multiply 5462 by 2
and it is 10924. and so you have
Together *facit* — 1137. 10.

For prooife at 4 l.s. 8.d. what 5 46. Take
the product by 2, and $\frac{1}{12}$ Pi.

$$\begin{array}{r}
 \text{The product} - 1092. \quad 0. \quad 0. \\
 \text{for } \frac{1}{12} \text{ Pi.} \qquad \qquad \qquad 45.10.0. \\
 \hline
 \text{facit} \qquad \qquad \qquad 1137.10.0.
 \end{array}$$

At 3 Pi. what 6 42. Take the product by 3.

$$\text{facit} - 1926.$$

At 3. Pi. 2. s. 4. d. what 4 65. Take the
product by 3, and $\frac{1}{12}$ Pi. and thereof.

At 3. Pi. 2. s. 4. d. what 4 65.

$$\text{The product} - 1395.$$

$$\text{for } \frac{1}{12} \text{ Pi.} - 46. \quad 10.0.$$

$$\text{for thereof} - 7. \quad 15.0.$$

$$\begin{array}{r}
 \text{facit} - 1449. \quad 5.0.
 \end{array}$$

At 4 Pi. 3.s. 6.d. — what 5 72. Take the
product by 4 $\frac{1}{12}$ Pi. and $\frac{1}{20}$ Pi.

At

Breefe Rules.

At 4. li 3. s. 6. d. what 572.

By 4 the product —	2288.	0. 0.
for $\frac{1}{8}$ li.	71.	10.0.
for $\frac{1}{20}$	28.	12.0.
facit	<u>2388.</u>	2.0.

At 5. li. 4. s. 7. d. what — 346.

Take the product by 5. and $\frac{1}{4}$ li. and $\frac{1}{20}$ and $\frac{1}{6}$ thereof.

At 5. li. 4. s. 7. d. — 346.

The product —	1730.	0.	0.
for $\frac{1}{4}$ li. —	69.	4.	0.
for $\frac{1}{20}$ —	8.	13.	10.
for $\frac{1}{6}$ thereof	1.	8.	10.
facit —	<u>1809.</u>	5.	10.

At 6. li. 5. s. 8. what — 293.

Take the product by 6. and $\frac{1}{4}$ li. and $\frac{1}{20}$.

At 6. li. 5. s. 8. d. what — 293.

The product — 1758.

for $\frac{1}{4}$ li.	73.	5.	0.
for $\frac{1}{20}$	9.	15.	3.
facit —	<u>1841.</u>	0.	4.

At

At 7.Li. 6.s. 9.d. what 2 7 8.

Take the producte by 7. and $\frac{1}{3}$ Li. and $\frac{1}{4}$ of $\frac{1}{10}$.

At 7.Li. 6.s. 9.d. what — 2 7 8.

The producte 1946.

for $\frac{1}{3}$ Li. 92, 13, 4,

for $\frac{1}{10}$, 4, 12, 8,

for $\frac{1}{4}$ thereof, 1, 3, 2.

Whiche vncanselled facit 2039. 16.6.

At 8.Li. 7.s. 10.d. what — 2 4 4.

Take the producte by 8. and $\frac{1}{3}$ Li. and $\frac{1}{10}$, and $\frac{1}{4}$ thereof.

The giuen number — 2 4 3.

By 8. the producte 1944. 0. 0.

for $\frac{1}{3}$ 81. 0. 0.

for $\frac{1}{10}$ 12. 3. 0.

for $\frac{1}{4}$ thereof, 2. 0. 6.d.

facit 1944. 0. 0.

At 9.Li. what — 2 3 1.

Take the producte by 9.

The giuen number — 2 3 1.

facit 2079.

When

Breefe Rules.

When the value of an unitie is more then
with adicet to bee expressed: Then the said
value expressed by mixed figures, is by yed
by necessitie, to bee set dounce for multiplicator,
ynder the giuen number, and no parte
thereof referred to memorie, as in the for-
mer examples, and the partes taken by for-
mer order, as in some examples followyng,
the effecte also appearing.

At I I. £. I 2. S. 4. d. what is 2 4.
Take the product of II, and $\frac{1}{2}$ £. and $\frac{1}{5}$ ther-
of, and $\frac{1}{6}$ thereof.

The giuen nomber π ed in 5.2 4. in sd D.

				I	I.
				5	2
				4.	0
				5	2
				4.	0
				2	6
				2	0
				5	2.
				8.	0.
				8.	14.
				8.	8.
<i>facit</i>			6	0	87.2.

At 2 3. £. 1 3. 5. 6. d. what 2 3 4. ³₂ D
Take the product of 2 3. and $\frac{1}{2}$ £. and $\frac{2}{3}$
thereof, and $\frac{1}{2}$ thereof,

The

$$\begin{array}{r}
 \text{The giuen nomber} \quad 234 \\
 \times \text{the product of} \quad 23 \\
 \hline
 702 \\
 468 \\
 \hline
 117 \\
 39 \\
 \hline
 1. 19. 0 \\
 \text{facit.} \quad 5539. 19. 0
 \end{array}$$

At 34. li. 14 s. 8 d. what 142.
 Take the produce of 34, and $\frac{1}{2}$ li. and $\frac{1}{3}$, and
 $\frac{1}{4}$ thereof.

$$\begin{array}{r}
 \text{The giuen nomber} \quad 142 \\
 \times \text{the product of} \quad 34 \\
 \hline
 568 \\
 426 \\
 \hline
 71. 00 \\
 28. 80 \\
 \hline
 4. 14. 8 \\
 \hline
 \text{facit.} \quad 4932. 28.
 \end{array}$$

And accordaning to the same order, euery
 mannes occasion maie bee furnished infinite-
 ly; wherefore to giue more examples of for-
 mer effecte, might seeme superfluous. Howbe-

303
Breefe Rules.

it to give the valuation accordyngly , of the Quintall and severall C. waightes and partes of euery of the same: sondrie examples hereafter followe.

The Quintall containing 100 lib. subtill.

The quintall at 34.li. 13.s. 4.d. what 95 lib.
Take the price of the 100.lacking $\frac{1}{20}$ therof
At 34.li. 13.s. 4.d. what. 95.lib.

for the whole 100.	34. 13. 4. d.
whercof $\frac{1}{20}$ rebated	1. 14. 8.
Per rest facit	32. 18. 8.

The 100 lib. at 29.li. 10.s. what 90. lib.

Take the whole lacke $\frac{1}{10}$.

the whole.	29. 10.0 d
from whiche $\frac{1}{10}$	2. 19.0
per rest facit	26. 11.0

The 100 lib. at 26.li. 3.s. 8.d. what 86.lib.

Take $\frac{3}{4}$ of the whole, and $\frac{1}{10}$ and $\frac{1}{10}$ thereroft

At

At 12 li. 16 s. what 3 7. lib.

	3.4. 0
	1.05.7. $\frac{1}{3}$
	05.1. $\frac{1}{3}$ & $\frac{1}{3}$ of $\frac{1}{3}$
facit	4.14.8. $\frac{1}{3}$ $\frac{1}{3}$

The 100 lib. at 8 li. 2 s. 6 d. what 14. lib.

Take $\frac{1}{10}$ and $\frac{1}{5}$ thereof

0.16.3
06.6

Facit. — I. 2.9d.

The 100 lib. at 5. 1 3. 4. what 9. lib. Take

$\frac{1}{10}$ lacke $\frac{1}{5}$ thereof,

for $\frac{1}{10}$ of 100 lib. O. 11.4
from whiche $\frac{1}{5}$ I. I. $\frac{1}{3}$
Per rest facit I. 0.2. $\frac{1}{3}$

The 100 lib. at 3 li. 6 s. 8 d. what 6. lib.

Take $\frac{1}{10}$ of $\frac{1}{6}$ and $\frac{1}{5}$ thereof

O. 6.8

3.4

Facit. — O. 4.0 d.

R.j.

The

III

100, For C.

The 100 lib. at 2.s. 10.s. what 4 lib.

Take $\frac{2}{5}$ of $\frac{1}{10}$. For $\frac{1}{5}$.

O. 5. O. d.

Whereof $\frac{2}{5}$ facit

O. 2. O. d.

The 100 lib. at 16 s. 8.d. what 3. lib. Take

$\frac{1}{2}$ of $\frac{1}{10}$ & $\frac{1}{2}$ thereof. For $\frac{1}{10}$.

O. 4. 8.

For $\frac{1}{2}$ thereof

O. O. 4.

For $\frac{1}{2}$ thereof

O. O. 2.

facit

O. O. 6.d.

The 100 lib. at 13 s. 4. d. what 2. lib. Take

$\frac{2}{5}$ of $\frac{1}{10}$.

O. 4.

of $\frac{1}{10}$.

O. O. 3.d. $\frac{1}{5}$

The 100 lib. at 10 s. what 1. lib. Take $\frac{1}{10}$

of $\frac{1}{10}$.

O. P. O.

facit

O. O. 1. $\frac{1}{5}$.

The 100 lib. at 8 s. 4 d. what 4. onzes. Take

$\frac{1}{4}$ of $\frac{1}{10}$ of $\frac{1}{10}$. For $\frac{1}{10}$.

O. O. 10 d.

For $\frac{1}{10}$ thereof O. O. 4.d.

Whereof $\frac{1}{4}$ facit

O. O. O. 6. mits

As

As every of former examples are profitabile, and of many the vnderstanding maiest be desired to finde the sonderie partes of the 100 lib. the same to value after the rate of þ E. so of all the other it maiest seeme moste necessary to vnderstaide, how by the price of the E. to finde the value of the pounde waight, & the onze with moste facilitie: wherfore for a generall rule, to finde the value of 1. pounde waight by the price of the E. take ever $\frac{1}{10}$ of $\frac{1}{10}$ of the price that the E.lib. is valued at, and that is the true value of the pounde waight, as before appeareth, and by an other example folowyng, the effecte is manifeste.

The E. at 45. li. 17 s. 6 d. what 1 li. Take

$\frac{1}{10}$ of $\frac{1}{10}$. i. For $\frac{1}{10}$ 4. II. 9 d.

Whereof $\frac{1}{10}$ facit 09 2 d $\frac{1}{10}$.

Likewise to finde the value of the vnze begining 16. as in the haberdepoise, Take $\frac{1}{16}$ of $\frac{1}{10}$ of $\frac{1}{10}$ and haue your desire.

How be it, if the vnze bee of 12 in the lib. waight Troye, then take $\frac{1}{12}$ of $\frac{1}{10}$ of $\frac{1}{10}$ and accordingly haue your desire.

Of the E. waight containing 112 li.

R. is.

The

112. For C.

The C. waight at 36. li. what 96 lib. Take
the whole price of the C. lacking $\frac{1}{2}$ and $\frac{1}{7}$
therof.

The whole — 36. 0. 0. d.
From whiche $\frac{1}{8}$ — 4. 10. 0.
And $\frac{1}{2}$ of it — 0. 12. 10. $\frac{5}{7}$.
Per rest facit — 30. 17. 1. $\frac{5}{7}$.

For proofe, the C. at 36. l. what $\frac{3}{4}$ & 12 lib.
Take $\frac{1}{3}$ and $\frac{1}{2}$ thereof, and $\frac{1}{2}$ therof, lacke $\frac{1}{7}$

For — $\frac{1}{2}$ — 18. 0. 0.
For $\frac{1}{2}$ thereof — 9. 0. 0.
For — $\frac{1}{2}$ thereof — 4. 10. 0.
From whiche $\frac{1}{7}$ — 0. 12. 10. $\frac{5}{7}$.
Per rest facit. — 30. 17. 1. $\frac{5}{7}$.

The C. at 32. li. what — 84. lib. Take $\frac{1}{2}$
of the whole price. For — $\frac{1}{2}$ — 16. li. 5. s. 0. d.
For $\frac{1}{2}$ thereof — 8. 2. 6.

Together facit — 24. li 7. s. 6. d.

For proofe the C. at 32. li. 10. s. what 84. lib.
Take the whole lacke $\frac{1}{4}$ thereof.

At

At 32 Pi. 10 s. what — 84 Pi.

For the whole	—	32. 10.
From whence $\frac{1}{4}$ thereof	—	8. 2. 6.
Per rest facit	—	24. 7. 6.

The C. at 28 Pi. 5 s. what — 72 Pi.

Take $\frac{1}{2}$ and $\frac{1}{4}$ thereof, and $\frac{1}{7}$ thereof.

At 28 Pi. 5 s. what — 72 Pi.

For — $\frac{1}{2}$ —	I 4. 2. 6. d.
For — $\frac{1}{4}$ thereof	3. 10. 7. $\frac{1}{2}$.
For — $\frac{1}{7}$ thereof	0. 10. 1. $\frac{1}{4}$
Together facit —	I 8. 3. 2. $\frac{4}{7}$.

The C. at 25 Pi. 13 s. 4 d. what 66 Pi.

Take $\frac{1}{2}$ and $\frac{1}{3}$ thereof, and $\frac{3}{7}$ thereof.

At 25 Pi. 13 s. 4 d. what — 66 Pi.

For — $\frac{1}{2}$ —	I 2. 16. 8. d.
For $\frac{1}{3}$ thereof	I. 12. I.
For — $\frac{3}{7}$ thereof	4. 7.
For the double therof	9. 2.
Together facit —	I 5. 2. 6.

The C. at 22 Pi. 12 s. what — 60.

Take $\frac{1}{2}$ and $\frac{1}{7}$ of $\frac{1}{2}$ thereof.

112, lib. For C.

At 22 Pi. 12 s. what — 50.

For — $\frac{1}{2}$ —	11.6. 0.0.
For $\frac{1}{2}$ thereof	5. 13.0.
For — $\frac{1}{7}$ thereof	1.6. 1. $\frac{5}{7}$
Uncancelled facit	12.2. 1. $\frac{5}{7}$

The C. at 18 Pi. 6 s. 8 d. what — 50 Pi.
Take $\frac{1}{4}$ and $\frac{1}{2}$ thereof, & $\frac{1}{3}$ therof, & $\frac{1}{5}$ thereof.

At 18 Pi. 6 s. 8 d. what — 50 Pi.

For — $\frac{1}{4}$ —	4. 11. 8.
For $\frac{1}{2}$ thereof	2. 5. 10.
For $\frac{1}{3}$ thereof	1. 2. 11.
For $\frac{1}{5}$ thereof	3. 3. $\frac{3}{7}$.
Together facit	8. 3. 8. $\frac{2}{7}$.

The C. at 16 Pi. 13 s. 4 d. what — 42 Pi.
Take $\frac{1}{4}$ and $\frac{1}{2}$ therof,

At 16 Pi. 13 s. 4 d. what — 42 Pi.

For — $\frac{1}{4}$ —	4. 3. 4. 0.
For $\frac{1}{2}$ thereof	2. 1. 8.
Together facit	6. 5. 0. 0.

The C. at 12 Pi. 10 s. what — 35 Pi.
Take $\frac{1}{4}$ and $\frac{1}{2}$ thereof.

The

At 12 Pi. 10.s. — what 35.Pi.

For $\frac{1}{4}$	3. 2. 6.d.
For $\frac{1}{4}$ thereof	15. 7. $\frac{1}{2}$.
Together facit	3. 18. 1. $\frac{1}{2}$.

The C. at 10.Pi. 15.s. what — 30.Pi.

Take $\frac{1}{4}$ and $\frac{1}{14}$ thereof.

At 10.Pi. 15.s. what — 30.Pi.

For $\frac{1}{4}$	2. 13. 9.
For $\frac{1}{14}$ thereof	3. 10. $\frac{1}{4}$
facit	2. 17. 7. $\frac{1}{4}$.

The C. at 8.Pi. 16.s. what — 24.

Take $\frac{1}{4}$ lacke $\frac{1}{7}$ thereof.

At 8.Pi. 16.s. — what 24.Pi.

For $\frac{1}{4}$	2. 4. 0. d.
From whiche $\frac{1}{7}$	6. 3. $\frac{3}{7}$.
Per rest facit	1. 17. 8. $\frac{4}{7}$.

The C. at 6.Pi. 13.s. 4. what — 20.Pi.

Take $\frac{1}{4}$ and $\frac{1}{2}$ thereof lacke $\frac{1}{7}$ thereof.

R.iiij. The

112. lib. For C.

The C. at 6 li. 13 s. 4 d. what 20. li,

For — $\frac{1}{8}$ —	o. 16.8.d.
For — $\frac{1}{2}$ thereof.	8. 4.
From whiche — $\frac{1}{7}$ —	I. 2. $\frac{2}{7}$.
Per reste facit —	I. 3. 9. $\frac{5}{7}$.

The C. at 5.s.4.what — 16 li. Take $\frac{1}{8}$ and	
and $\frac{1}{2}$ thereof. For $\frac{1}{8}$	o. 13 o.d.
For $\frac{1}{2}$ thereof —	I. 10. $\frac{2}{7}$.
facit	o. 14. 10. $\frac{2}{7}$.

The C. at 3.li.6 s.8d. what 10. lib. Take $\frac{1}{4}$ of $\frac{1}{4}$ and $\frac{1}{2}$ thereof.

for $\frac{1}{4}$	o. 4.6. 8d.
for — $\frac{1}{4}$ thereof	o. 4. 2
for $\frac{1}{2}$ thereof	o. o. 7. $\frac{1}{7}$
for the double therof	o. I. 2. d. $\frac{2}{7}$
facit	o. 5. 11 d. $\frac{2}{7}$

The C. at 40 s. what — 7.lib. Take $\frac{1}{4}$ of $\frac{1}{4}$

for $\frac{1}{4}$	o. x. 0. 0
whereof $\frac{1}{4}$ facit	o. 2. 6d.

The

The C. at 33 s. 4 d. what — 6. lib. Take $\frac{1}{7}$ of $\frac{1}{4}$ and $\frac{1}{2}$ thereof

for $\frac{1}{4}$	O. 8. 4
whereof $\frac{1}{7}$ —	O. I. 2. $\frac{3}{7}$
and $\frac{1}{2}$ thererof	O. O. 7. $\frac{1}{7}$
facit	O. I. 9. $\frac{3}{7}$

The C. at 30 s. 6 d. what 4 lib. Take $\frac{1}{7}$ of $\frac{1}{4}$

for $\frac{1}{4}$	O. 7. 6 d.
whilstrof $\frac{1}{7}$ facit	O. I s. $\frac{6}{7}$ d.

The C. at 26 s. 8 d. what 2. lib. take $\frac{1}{7}$ of $\frac{1}{4}$ of $\frac{1}{2}$

for $\frac{1}{2}$ —	O. 06. s. 8 d.
for — $\frac{1}{7}$ thereofo.	O. I I d. $\frac{3}{7}$
whereof $\frac{1}{2}$ facit	O. 5 d. $\frac{5}{7}$

The C. at 20 s. what 1. lib. Take $\frac{1}{4}$ of $\frac{1}{2}$ of $\frac{1}{4}$ or $\frac{1}{7}$ of $\frac{1}{16}$

for $\frac{1}{4}$	O. 5. 0
for — $\frac{1}{7}$ therenf	8. $\frac{4}{7}$
whereof $\frac{1}{4}$ facit	O. O. 2. $\frac{1}{7}$

To

To find the value of the ounze by the price of the C. waight, you must first finde the value of the pound waight, as before, and then take $\frac{1}{16}$ thereof, and that is the value of the ounze, as by example.

The C. at 24.lib.what 1. onz. Take $\frac{1}{16}$ of $\frac{1}{7}$ of $\frac{1}{16}$

for $\frac{1}{16}$	X. X. O. O. D.
for $\frac{1}{7}$ thereof	O. 4.3 $\frac{3}{7}$
whereof $\frac{1}{16}$ facit O. 0.3 $\frac{3}{14}$	

For profe, the C. at 24.lib.what 1. ounze.
Take $\frac{1}{16}$ of $\frac{1}{4}$ of $\frac{1}{7}$ of $\frac{1}{4}$

for $\frac{1}{4}$	O. O. O. D.
for $\frac{1}{7}$ thereof	O. 17.1 $\frac{5}{7}$
for $\frac{1}{4}$ thereof	O. 4.3 $\frac{3}{7}$
whereof $\frac{1}{16}$ facit	O. 0.3 $\frac{3}{14}$

In like maner may bee taken any parte of the pounde waight, accordingyng to the proportion it beareth to the whole.

Of the C. containyng 120, for the C.

The

The C. of Canuas at 7. Pi. what 90. elles.

Take $\frac{1}{2}$ and $\frac{1}{2}$ thereof.

At 7 Pi. what — 90. elles.

For $\frac{1}{2}$ — 3 Pi. 10 S. 0 D.

For $\frac{1}{2}$ thereof — I. 15.0

Together facit 5.0

The C. at 8 Pi. what — 85. Take $\frac{1}{3}$ and $\frac{1}{16}$ thereof.

For $\frac{1}{3}$ — 5. 6. 8 D.

For $\frac{1}{16}$ thereof — 0. 6. 8

Together is 5. 13. 4

The C. at 9 Pi. what — 74. Take $\frac{1}{2}$ and $\frac{1}{6}$ thereof, and $\frac{1}{5}$ thereof

For $\frac{1}{2}$ — 4. I. 0. 0 D.

For $\frac{1}{6}$ thereof — 0. 15. 0

For $\frac{1}{5}$ thereof — 0. 6. 0

$\frac{1}{2} . 0 . 0$

$\frac{1}{2} . 8 . 4 . 0$

— 5. 11. 0

The

120. lib. For C.

The C. 16 s. 8 d. what — 6 8. Take $\frac{1}{2}$ and $\frac{1}{3}$
of $\frac{1}{3}$.

For $\frac{1}{2}$	0. 8. 4 d.
For $\frac{1}{3}$	0. 5. 6. $\frac{2}{3}$
For $\frac{1}{6}$	0. 1. 1. $\frac{1}{3}$

The uncancelled is 0. 9. 5 d. $\frac{1}{3}$

The C. at 13 s 8 d. what 5 1. P. Take $\frac{1}{2}$ and
 $\frac{1}{4}$ thereof and $\frac{1}{10}$ thereof

For $\frac{1}{2}$	0. 4 s. 6 $\frac{3}{4}$
For $\frac{1}{4}$ thereof.	0. 1. 1 $\frac{1}{4}$
For $\frac{1}{10}$ thereof	0. 0. 1 $\frac{1}{2}$ & $\frac{1}{10}$ of $\frac{1}{4}$

Together facit 0. — 5 . 9. $\frac{7}{10}$

The C. at 12 s. 6 d. what — 4 5. — Take $\frac{1}{2}$
and $\frac{1}{3}$ thereof.

For $\frac{1}{2}$	0. 4. 2 d.
for $\frac{1}{3}$ thereof	0. 0. 6. $\frac{1}{4}$
facit —	0. 4. 8. $\frac{1}{4}$

The

The C. at 11 s. what — 36. — Take $\frac{1}{4}$ and
 $\frac{1}{2}$ thereof

For $\frac{1}{4}$ — 0. 2. 9.

For $\frac{1}{2}$ thereof — 0. 0. 6. $\frac{3}{4}$

facit — 0. 3. 3. $\frac{1}{2}$

The C. at 10 s. what — 30. — Take $\frac{1}{2}$

for $\frac{1}{2}$ facit — 9. 2. 6.

The C. at 8 s. what — 25. Take $\frac{1}{6}$ and
 $\frac{1}{2}$ therof, or $\frac{1}{4}$ lacke $\frac{1}{2}$ therof

For $\frac{1}{6}$ — 0. 1. 4.

For $\frac{1}{4}$ therof — 0. 0. 4.

facit — 0. 1. 8 d.

The C. at 6 s. 8 d. what — 16. — Take $\frac{1}{6}$
lacke $\frac{1}{2}$ therof or $\frac{1}{10}$ & $\frac{1}{2}$ thereof

For $\frac{1}{6}$ — 0. 0. 8 d.

For $\frac{1}{10}$ thereof — 0. 0. 2. $\frac{2}{3}$

facit — 0. 0. 10. $\frac{2}{3}$

The

120. For C. O. I.

The C. at 5 s. what — 10. Take $\frac{1}{2}$, or $\frac{1}{2}$
of $\frac{1}{2}$, or $\frac{1}{4}$ of $\frac{1}{2}$.

$$\text{For } \frac{1}{2} \text{ facit} \quad \text{O. O. 5 d.}$$

The C. at 4 s. what — 6.

Take $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{4}$ of $\frac{1}{2}$.

$$\text{At 4 s. what} \quad \text{O. O. 6 d.}$$

$$\text{For } \frac{1}{4} \quad \text{O. O. 4, D. } \frac{1}{2}.$$

$$\text{Whereof } \frac{1}{2} \text{ is} \quad \text{O. O. 2. } \frac{3}{4}.$$

The C. at 3 s. 4 d. what — 2.

Take $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{4}$ of $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{8}$ of $\frac{1}{2}$, or $\frac{1}{16}$ of $\frac{1}{2}$.

The given number what — 2 —

$$\text{For } \frac{1}{16} \quad \text{O. O. 4. } \frac{1}{2}.$$

$$\text{For } \frac{1}{8} \text{ thereof is} \quad \text{O. O. O. } \frac{3}{4}.$$

The C. at 3 p. 6 s. 8. what — 1.

Take $\frac{1}{2}$ of $\frac{1}{2}$, or $\frac{1}{4}$ of $\frac{1}{2}$.

The

The C. at 3 li. 6 s. 8 d. — I.—

For — $\frac{1}{2}$ —	$\underline{\underline{0.6.8.d.}}$
-----------------------	------------------------------------

Whereof — $\frac{1}{2}$ is	$\underline{\underline{0.0.6.\frac{2}{3}.}}$
----------------------------	--

For y^e p^roo^fe the C. at 3 li. 6. 8. what — I —
Take $\frac{1}{6}$ of $\frac{1}{2}$ of $\frac{1}{4}$.

At 3 li. 6 s. 8 d. what — I. —

For — $\frac{1}{4}$ —	$\underline{\underline{0.16.8.d.}}$
-----------------------	-------------------------------------

For $\frac{1}{2}$ thereof —	$\underline{\underline{0.3. 4. d.}}$
-----------------------------	--------------------------------------

Whereof $\frac{1}{6}$ facit —	$\underline{\underline{0.0. 6.\frac{2}{3}.}}$
-------------------------------	---

Here note for a generall rule, that such proportion as the giuen nomber beareth to the C. the same proportion beareth the p^rice of the giuen nomber, to the p^rice of the C. and therein consisteth the difficultie, that to any lea^rner mate appere.

Thus is brought to ende gentle reader,
the effecte by my trauable pretended hercyn.
The whiche beyng so well accepted of thee,

120. For C.

as it hath been willyngly furthered, to procure contentation to all suche, as maie take profite or delectation by the same: so I maie bee encouraged to augmente my good will, infurtheryng of other warkes of greater consequence, therin assisted by the fauour of the almighty, into whose handes I committe thee fare-well.



que de sept en sept mil ans toutes les Republiques, avec le monde elementaire perit, & se repose mil ans: puis apres que Dieu renouuelle ce qui estoit peri: & que cela se fait par sept fois, qui font **XLIX** mil ans complets: & alors que le monde elementaire, & celeste, prend aussi fin avec tous ses corps demeurant la maiesté du grand Dieu éternel avec tous les esprits bienheureux. Et de fait les Arabes, & Mores ont decouvert depuis quatre cens ans, que le mouvement tremblant de l'auantime orbe n'accomplit sa revolution finō en sept mil ans precisément: & le **ix**, en **XLIX.** mil ans, & Jean de Realmont en a fait la demonstration depuis quatre vingts ans, duquel mouvement ny les Caldeās, ny les Egyptiens, n'auoyent peu sçauoir la vérité, & neantmoins cela nous est clairement figuré tant par les dix courtines du tabernacle, qui signifient les dix cieux mobiles, qu'on ne mettoit anciennement q pour huit: q par le texte formel de la loy de Dieu, parlant du repos de l'an septieme, & du retour des heritages apres quarante neuf ans, que Leon Hebrieu rapporte à sept & quarante & neuf mil ans. Mais quoy que les Hebrieux ayent eu les beaux secrets de Nature, & que leur opinion retranche l'impiété de ceux qui tiennent l'éternité du monde, ou l'oisiveté du créateur, si n'ont ils jamais assuré ces choses là, pour donner place au vouloir de Dieu, qui tient les causes, & destinees en sa main: ainsi qu'il a bien montré par le déluge vniuersel aduenu seize cens cinquante & six ans apres la creatio du nouveau monde. Mais Leouice ne void pas que depuis la creation du monde iusques à l'an **M.D.LXIIII.** il y a deux cens soixante & dixhuit conionctions des deux hautes planettes: entre lesquelles il y en a **XXIIII.** grandes, & plusieurs notables conionctions des moindres planettes. Et l'an **M.D.XXIIII.** la conionction se fit au mesme signe, qu'elle se fera l'an **1584.** car l'annee suiuante il n'y a poin de coïdctio, quoy qu'il die, des trois hautes planettes, ains seulement de Mars, & Saturne au second degré du Belier, & Jupiter en est eloigné de douze degrés, qui n'emporte con-

*creation
nonne ce
le So-
estant en
Liure.*

uerō. de Dio.

*Linius lib. 45.
utar. in AEmil
Cælius. 1. sar.
Cronique de
rance.*

Benth.

*Joseph.
Cromer.*

sur.

joint aussi que Leouice s'abuse suivant l'erreur vulgaire, qui a touſiours embrouillé les Astrologues es predictions de l'annee : d'autant qu'ils ſuppoſent que la creation fe fit au ſigne du Belier : ce qui eſt im- poſſible, ſi on ne veut arguer de faux la loy de Dieu, & mesmes les antiquitez des Egyptiens, comme nous auons montré cy deſſus.

Et ſi bien on prend garde aux grands & notables chan- gemens des eſtats, & Republiques, on trouuera que la pluspart fe fait enuiron le mois de Septembre où la loy de Dieu met le commencement du monde au ſigne de la Liure. la victoire d'Auguste contre ⁶ Marc Antoine, fut le ſecond iour de Septembre: où il eſtoit question du plus grand empire qui fut iamais, & debatu avec les plus grandes forces, qui furent onques aſſeimbles en guerre quelconque. Paul AEmyl chan- gea le grand Royaume de Macedonia, en plusieurs eſtats populaires, & emmena prisonnier le Roy Perſeus captif en Rome, ayant eu victoire le troisiesme iour ⁷ de Septembre. Sultan Suleyman au mesme iour print Bude, ville capitale d'Hongrie, & la pluspart du Royaume. Au mesme ⁸ iour Roderic Roy d'Eſ- pagne, fut vaincu, & chaffé de ſon eſtat par les Mo- res. ce qui apporta vn notable changement en toute l'Eſpagne. Au mesme iour Louys xii. Roy de Fran- ce print la ville de Milan, & le Duc Louys Sforſe & le despouilla de l'eſtat. Au mesme iour l'Empereur ^x Charles v. print la ville d'Alger. Le quatriesme iour de Septembre Sultan Suleyman mourut devant Seget, & le septiesme la ville fut prise. Hierusalem fut aussi pri- ſe le septiesme ² iour du mois de Septembre: & le iour ſuivant ³ Sigismond pere d'Auguste, Roy de Pologne, mit en route l'armee des Moscouites. Le iour ⁴ d'apres Iaques Roy d'Eſcoſſe fut tué par les Anglois en batai- le & la pluspart de la noblesſe d'Eſcoſſe. Aſſi liſoſ nous que l'onzieme iour de Septembre, les paleologues prin- dirent la ville de Conſtantinoble & en chafferent les Cotes de Fladres, qui auoyent tenu l'empire cinquante

fait de quatre cens nonante & six. Car tout ainsi q nous
 voyons entre les nombres droits, le nôbre de six , qui
 est nôbre parfait,dôner changemêt aux femelles,& le
 nombre de 7.aux masles : aussi le nôbre solide de sept,
 & les quarrez multipliez par les septenaires,sont signi-
 ficatifs des changemêts ou ruines des Republiques. &
 tout ainsi que le nombre de sept & neuf,dône commé-
 cement à la naissance humaine:& le nombre résultant
 de la multiplicatiō de l'un par l'autre,le pl^e souuēt met-
 fin à la vie des hommes:aussi le nôbre D. C C X X I X .qui est
 solide de neuf,tire apres soy bien souuēt la fin ou châ-
 gement notable des Republiques . Quant au premier
 point,Seneque dit,*septimus quisque annus etati notam im-*
primit:cela s'entēd des masles seulement:car l'experiēce
 nous monstre à veüe d'œil , que le nôbre de six apporte
 changemêt & dône quelque marque aux femmes . &
 mesme la puberté,qui est é des hommes à xiiii. n'est aux
 filles qu'à douze ans:& continuât de six , en six , il se
 trouve quelq châgemen̄ notable en elles pour la dispo-
 sitio du corps ou de l'esprit. ioint aussi que Platō au nô-
 bre nuptial , attribue le nôbre pair aux femelles , & le
 nombre impair aux masles. et pource , Plutarque dit,
 qu'on nômoit les masles au neufiesme iour,par ce q le
 septiesme estoit plus dangereux: & les filles le huitié-
 me:d'autât q le nôbre pair,dit-il,est propre aux femel-
 les.Pline dit aussi, que ceux qu'o faisoit mourir de fain
 en prisō,ne passoyēt iamais le septiesme iour,Nous a-
 uons en Aristote plusieurs animaux qu'il racôte , qui ne
 passoyēt iamais le septiesme an .et tous les anciens ont
 remarqué, q le nombre de LXIII. qui est multipliee de
 7, par 9, tire apres soy ordinairement la fin des vieil-
 lards,& mesme l'empereur Auguste escriuât à ses amis
 prenōs,dit-il, courage, puis q i ay eschapé le soixâte &
 troisième an, qui emportie quasi tous les vieillars,de-
 puis il vescut jusques au septâte & septiesme,côme aussi
 fit Atticus. Il s'etrouue vn nôbre infini qu'o void mou-
 rir à c'est aage,& me souuēt entre les doctes (qui sont
 morts cette annee là) ie mettray Aristote, Cicerô,Cri-

aux demandes
Romaines.

Le nombre de
63. danger
reux aux
vieillards.

Aul. Gel.

me. & semble que cela estoit signifié par les anciens qui auoyent consacré, sept à Apollon, & neuf aux Muses, comme dit Plutarque.

Et qui voudra voir en la Bible, ou es histoires, on trouuera la mort ordinaire aux septenaires, ou nouenaires. Platon mourut à 81. an, qui sont neuf nouenaires. Théophraste à 84. qui font 12. septenaires : que peu de personnes eschapent : ou bien ils vont au 13. septenaires comme S. Hierosme & Socrate qui vécurent 91. an : Plin & Bartole 56. qui sont 8. septenaires : Lamech 779. Methusalem 970. ans. Abraham 175. qui sont 25. septenaires, Jacob 147. qui sont 21. septenaires : Isaac 180. qui font 20. nouenaires, David 70. Il s'en trouve es histoires nombre infini de semblables. Pourquoys plus qst ad uiendroit il en ces nombres là qu'es autres ? Pourquoys le septième masle gäerist-il des escroquilles ? car mesme les Grecs ayant descouvert ceste merueille de nature appelloient le septième masle Hebdomagene. & la loy de Dieu n'a rien plus frequent, que le septenaire : soit pour les festes du septième iouf, & du septième mois : soit pour afbranchir les seruiteurs, & laisser la terre sans culture le septième an : soit pour le retour des heritages, apres sept fois sept ans, qui estoit l'an Iubilé. Les Hebreux pour ceste occasion l'ont appellé nombre sacré, non pas parfait, comme aucuns disent : car il est impossible par nature que les nombres parfaits soient impairs : veu qu'il faut qu'ils se diuisent égalemēt des parties qui les composent. Plutarque aux symposiaques a fait vne mesme faute ; quand il dit que 3. est nombre parfaict, combien qu'il a grande puissance en toute la nature, comme Aristote mesme confesse. Or il n'y a que quatre nombres parfaits depuis vn jusques à dix mil, c'est à sçauoir 6. 28. 496. & 8128. entre lesquels, le dernier ne peut servir aux changemens des Republiques, d'autant qu'il passe l'age du monde : ny les deux premiers, qui sont moindres. Et les nombres touchans les changemens des Republiques, se peuvent entendre des princes, ou des ans : comme qui diroit qu'un

*a force des
ombres, se-
naires.*

Il y a de ce que.

